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MOTOR AGE

CHICAGO TO DENVER, GLIDDEN SUGGESTION

In Nebraska Are Roads Wide Enough for Four Cars Abreast

CHICAGO, March 2—Speculation continues rife as to the possible route for the Glidden tour. With many it is an assured fact that the tour will be west, but the itinerary is far from settled. Undoubtedly, one stage of the tour will be from Chicago to Denver, although the exact route is difficult to outline. The direct path would be Chicago, Moline, Ill., Des Moines, Ia., Omaha, Neb., Grand Island, Neb., North Platte, Neb., Julesburg, Colo., to Denver, approximately 1,100 miles. A direct course of this nature would leave out of consideration two states, deserving of recognition in a western tour, namely, Wisconsin and Minnesota, and it yet remains an unsettled problem how such centers as Milwaukee, Madison, St. Paul and Minneapolis, could be looked after on this Chicago-Denver run, although it is expected that the enthusiastic motorists of these states would see to it that feasible routes could be procured. Wisconsin and Minnesota are heavy motor car buying states, the motor enthusiasm runs high through both of them, and the value to manufacturers in passing through these states would be considerable.

The Half Way House in Nebraska

Best Route to Denver

In the direct route from Chicago to Denver, by far the best course is the trans-continental route, over which the different manufacturers who have tried for records from the Pacific to the Atlantic have traveled. Although not generally understood, great wisdom has been displayed in the selection of this route, and it threads a farming community through Illinois, Iowa and Nebraska, which is most valuable. Throughout Iowa much of the farm land bordering this route sells for $100 to $150 per acre; farmers are wealthy, many of them at present own motor cars, and the present season will see hundreds of these farmers in the market for low and medium-powered cars.

With this trans-continental route there would have to be a few deviations on the trip. The first day's run from Chicago would be to Moline, Rock Island and Davenport to the Mississippi river, a distance of 195 miles. These cities are not on the direct trans-continental route, but are 30 miles south of Clinton, Ia., through which town the route passes; but it would be a mistake on a run of this nature not

Sample Roads in Colorado

MANY BRIDGES LIKE THIS IN NEBRASKA

TYPICAL ROADSIDE CONDITIONS IN NEBRASKA

to make such a detour because of the big population and motor-purchasing possibilities of these cities.

From Moline the route to Clinton would be up the west side of the Mississippi, and thence direct west to Cedar Rapids, 95 miles, in some of the most productive farming lands in Iowa. As the map across Iowa shows, the trans-continental route runs north of Des Moines, passing as it does through Marshalltown and Boone, but a little detour could be arranged to the capital city. From Des Moines, the straight route to Omaha, known as the southern route, is not through such good farming lands, as that passed through on the trans-continental route, and consequently the possibilities of selling cars would be less.

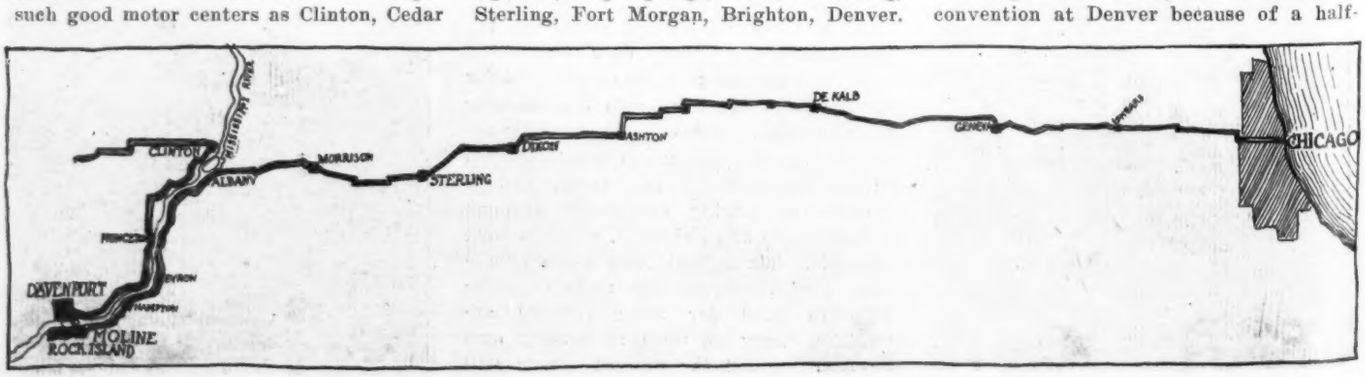
Shortest Way Across Iowa

In the direction the crow flies, the shortest route across Iowa, would be by way of Davenport, Durant, Iowa City, Marengo, Grinnell, Newton, Colfax, Des Moines, Waukee, Redfield, Dexter, Menlo, Adair, Atlantic, Walnut, Avoca, Neola, Omaha. This has been termed the "southern route," and does not pass through as valuable country as does the trans-continental run, and so should not receive such favorable consideration. It escapes such good motor centers as Clinton, Cedar Rapids, Marshalltown, Boone and Carroll, and has an excuse for avoiding these only as Des Moines, which as already mentioned, could be included in the trans-continental route by a short detour.

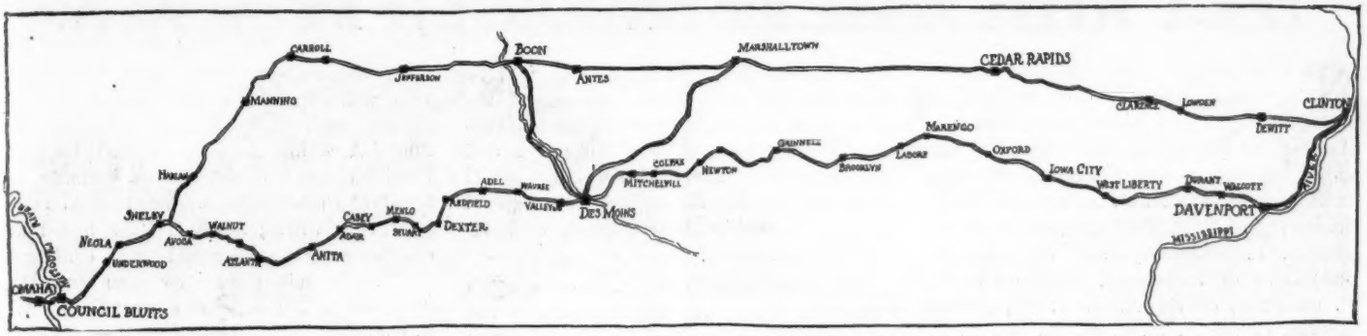
From Omaha to Denver the popular and easy route is by way of Grand Island via Fremont, Ames, North Bend, Schuyler, Columbus and Central City. This is an ideal day's run, but unfortunately does not include Lincoln, the capital of Nebraska and its second city in commercial importance. There is a simple way of including Lincoln, however, by diverging slightly southwest directly at Omaha, passing through Valley, Yutan, Mead, Ithaca and Waverly, to Lincoln. This is a short run of less than 100 miles, but will be found difficult if the roads are wet. From Lincoln the roads will be found excellent on the whole by going almost directly westward through Seward, Utica, Waco, York, Aurora and Phillips to Grand Island, where the transcontinental route is again taken westward through the following cities and towns direct to Denver: Wood River, Shelton, Gibbon, Buda, Kearney, Lexington, Cozad, Willow Island, Gothenburg, Brady Island, North Platte, Palas, Hershey, Sutherland, Ogallala, Big Springs, Colo., Julesburg, Sterling, Fort Morgan, Brighton, Denver.

Starting from Omaha, the transcontinental route runs almost directly westward through Fremont and on to Grand Island, a long but possible day's run, but this is not the route most desirable for a tour like the Glidden. A better way is to arrange for a short day's run from Omaha southwest to Lincoln, the capital of the state, which has excellent hotel accommodations, and where there is a warm spot for motorists. This run could be made on a Sunday, and provided the weather and road conditions are good would leave ample time for a side run to the home of Mr. Bryan, at Fairview, just a few miles from Lincoln. No trip to Lincoln is complete without this sidelight, and no tourists should be satisfied to neglect a view of the beautiful home of the well-known statesman. There are few finer homes in America.

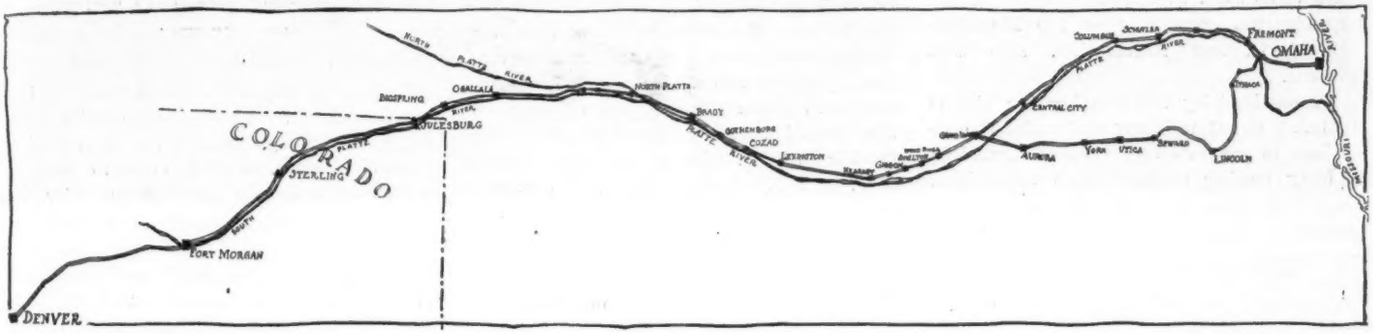
Between Omaha and Lincoln the roads are good, except just west of the Platte river, about 35 or 40 miles from Omaha, where in wet weather the tourists would have great difficulty in finding a passage. Many motorists have been caught at this point, the most disastrous, perhaps, being the experience of the delegates' train of five cars which was held an entire day at this point on its way to the democratic convention at Denver because of a half-



CHICAGO TO MOLINE, ACROSS ILLINOIS, WITH DETOUR FROM ALBANY TO MOLINE



ACROSS IOWA—TRANSCONTINENTAL ROUTE ABOVE—DIRECT ROUTE BENEATH



FROM OMAHA TO DENVER ON TRANSCONTINENTAL ROUTE WITH LINCOLN DETOUR

hour's heavy rain. The date was June 29 of last year, about a fortnight earlier than the customary time for the Glidden tour.

West of Lincoln there is a run of about 8 hours over splendid roads to Grand Island, passing through several towns of fair size. At a few points in the road there are bad culverts which need attention before so many cars ought to pass over, but presumably these will be given proper thought by the authorities. Nebraskans are anxious to get the tour.

Might Use Pullmans

Hotel accommodations at Grand Island are insufficient, as is true likewise at North Platte, the natural stopping place for the third night out of Omaha, but it is understood that sleeping and dining cars will cater to the tourists at these points, removing all worry on that score.

Roads between Grand Island and North Platte are wonderful in dry weather. The pathway is as level as a billiard table, wide enough for five or six cars to go abreast. With houses 10 to 15 miles apart and speed laws unknown, there will be opportunity for a fast schedule on that part of the tour. Twenty-five miles an hour would not be too fast for the big cars, and they probably would go nearer to 40 miles an hour unless curbed by the officials. Kearney, Neb., must be passed through on the way to North Platte on the day's run, and just west of that interesting city is "Half-Way House," in front of which stands a big sign notifying travelers that they are just 1,733 miles each way from Boston and from San Francisco.

It is during this day that the route lies close to the Platte river for many miles, and the approach is made to the foothills. The Platte river is interesting for many things but more especially because it is a mile or more wide on an average, while its depth is sometimes less than a foot. If the roads are too dusty the bed of the river makes a fairly good substitute path.

Julesburg a Night Stop

West of North Platte the route leads on to Julesburg, Colo., a natural stopping place for the night, but here again the hotels are inadequate for such a large party. The fact, too, that the run of 190 miles into Denver from Julesburg is too hard for a single day's run might influence the officials to seek another place for the night stop, and as the roads are generally very heavy the best plan, perhaps, would be to divide the distance from North Platte to Denver into 3 rather than 2 days' touring, although small touring parties generally attempt to cover the distance in 2 days.

IN HAY VALLEY, NEBRASKA—THE ROADS ARE GOOD, BUT HIDDEN BY TALL GRASS

PACT WITH MAKERS ENDORSED BY A. A. A.

NEW YORK, March 1—Efforts are being made to define the relations existing between the American Automobile Association and the car manufacturers, and as a preliminary step a meeting was held last week by the A. A. A. contest board, consisting of F. B. Hower, Frank G. Webb and A. L. McMurtry, and the advisory committee of tradesmen, made up of E. P. Chalfant, of the A. L. A. M.; Alfred Reeves, of the A. M. C. M. A., and E. R. Hollander, of the Importers' Automobile Salon. Howard E. Coffin, chairman of the organization committee of the Manufacturers' Contest Association, also was present.

As outlined by the meeting the aim is to bring about uniform and rational conditions in contests and vesting control in a body having national club affiliations, the result being to divide the country into districts, each to be represented by an association member of the contest board, whose duty it will be to keep the board advised of contest matters in his district.

The conference resulted in a decision that the Glidden tour will not be affected by the terms of the agreement between the manufacturers and the A. A. A. and that no sanction will be granted for a long distance road reliability contest within a month of the duration of the Glidden tour. A uniform entry blank was adopted and a new schedule of sanction fees adopted as follows: Road race where a stand is erected, $300; track meeting, $100; track meeting including 24-hour race, $250; hill-climb, $50; endurance contest, $50; road and beach speed trials, $100. All clubs affiliated with the A. A. A., however, are entitled to a 50 per cent reduction from these rates.

This session lasted 2 days and on Wednesday the executive committee of the American Automobile Association met and ratified the agreement with the manufacturers. At this same meeting Chairman Hower reported that the deed of gift of the Cobe trophy, offered by Ira M. Cobe, president of the Chicago Automobile Club, for the national stock chassis race, to be run in Indiana the latter part of May, is being prepared. He said it would be accepted by the association because all the conditions were agreeable to both parties, the A. A. A. and Mr. Cobe.

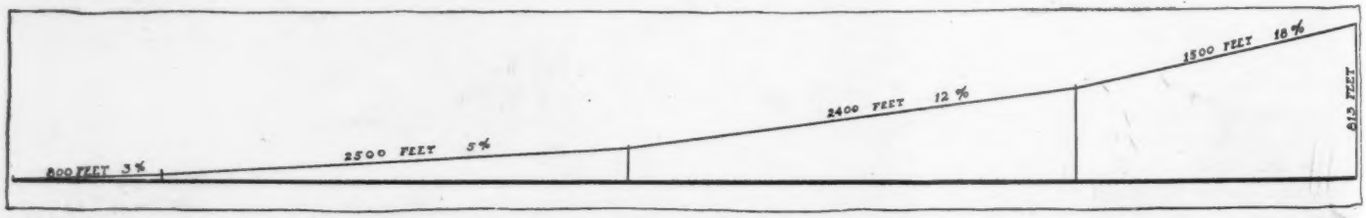
It is expected that at the March meeting of the directors, which will be held in Boston Thursday, March 11, plans will be made for the holding of the second annual good roads and legislative convention in which the National Grange and American Road Makers' Association will coöperate as they did at Buffalo. Several cities are bidding for the honor of holding the convention.

This work cleared away, the executive committee upheld its contest board in the matter of the appeal of the Quaker City Motor Club to reverse the decision of the latter in removing the disqualification imposed upon the Premier entrant in the Wilkes-Barre New Year's endurance run. The Quakers asked the executive committee to throw the case out of court on the ground that, in the absence of any specific A. A. A. rules governing endurance runs, and in view of the fact that entrants signed to contest under Q. C. M. C. rules, the contest board lacked jurisdiction. But the executive committee says the latter's decision is justified, and the Premier goes back into the list of cars which officially finished. So sure of their ground were the Quaker officials that they did not consider it necessary to compute the Premier's penalties, and now the club's contest committee is at work looking through the mass of checkers' and observers' reports with the view of arriving at the car's correct standing at the finish. When this is finally announced—it was unofficially stated that the said penalties foot up somwhere near 180—the Premierites probably will appeal to the Quakers' contest committee for a reduction based on the ground that their car was held up by stalled cars ahead.

That greater interest than ever before is being taken this year in the Glidden tour was in one way shown when Chairman Hower told of the very lively representations being made by the citizens of Detroit, of their desire that the tour be started from that city. H. E. Coffin wired than an unequaled celebration would be prepared and that every organization in the city would take part. The Automobile Club of Detroit has been heard from in a convincing manner. Philip Breitmeyer, mayor of Detroit, has indicated that the keys of the city would be ready for delivery to the motorists. Commissioner of Police Smith has extended his welcome. The special committee of the motor car manufacturers, who have their plants located in Detroit has given assurance of their coöperation. The hotel men have very willingly committed themselves to a square deal. The Detroit Wholesalers' Association has filed its formal request. President Lane, of the Detroit Automobile Dealers' Association, has been heard from in a very fitting manner. The board of commerce has expressed its confident hopes. Detroit newspaper men and the members of the Adcraft Club, through W. R. Orr, have added their weight—and last, but not least, George Gaston, sheriff of Wayne county, has offered his welcome.

NEW YORK-SEATTLE RUN

Seattle, Wash., Feb. 28—Upon the initiative of M. Robert Guggenheim and under the management of the Automobile Club of Seattle, a New York to Seattle endurance run will take place early in the coming summer. The start will be made from a point in New York city yet to be named and the finish will be in the stadium of the Alaska-Yukon-Pacific exposition in Seattle. Mr. Guggenheim will offer a trophy valued at not less than $2,000 and not less than $5,000 in cash prizes, and so far has he proceeded with plans for the big transcontinental event that he can already assure the participation of twenty cars, some of them of foreign make. The expense of the race, which is estimated at $10,000, will be borne by the Seattle club and Mr. Guggenheim. Maps of most feasible routes will be prepared and an advance agent will be sent over all of them to arrange for the suspension of speed laws in the counties and cities through which the route will be made. William K. Vanderbilt, donor of the Vanderbilt cup, will be the starter at the New York end and Mr. Guggenheim has been invited by the club to act in the capacity of referee. A Pacific coast advisory committee will also be appointed. The cash prizes will be divided, $2,000 to the winning car; $1,500 to the second; $1,000 to the third; $500 to the fourth and $300 to the fifth. The trophy will also go to the winning car, and in order that it may be altogether in keeping with the event a prize of $250 has been offered for the best design to be submitted by artists of the northwest. It is planned that the race shall start about May 15 in order that the finish may take place as close as maybe to the opening day of the Alaska-Yukon-Pacific exposition, which is June 1.



PROFILE OF PASADENA—ALTADENA HILL CLIMBED BY APPERSON AT 60 MILES AN HOUR

PHENOMENAL WORK ON PASADENA HILL

LOS ANGELES, CAL., Feb. 24—For the second time Edgar Apperson came to Los Angeles and drove his Jackrabbit to victory in the annual Pasadena-Altadena hill-climb on Monday. Last year Apperson made the ascent in 1:36⅕. This was considered phenomenal time for the grade, which is 1.4 mile in length. This time the Jackrabbit from a standing start averaged a mile a minute for the grade, the time being 1:24. The second best time was made by Barney Oldfield's six-cylinder Stearns, in 1:29½.

The Stearns was the favorite in the free-for-all and the battle for the honors between Oldfield and Apperson was sensational indeed. Oldfield's chances were practically ruined in the start, it taking him 19 seconds to reach the straightaway leading to the railroad crossing, whereas the Kokomo man made it in 14. Oldfield had to make three trials to get into the third speed. From the railroad crossing to the finish it was almost an even battle, there being a difference of only 5½ seconds between the Apperson and Stearns for the 1.4 mile. Apperson had a close call on his way up, a foolhardy spectator getting in the road and causing the driver of the Jackrabbit to swerve and almost go into the fence. Apperson recovered quickly but the mishap must have cost him at least a second. Siefert in the Stoddard-Dayton looked good until he straightened out for the tape, when he commenced to limp on two cylinders. As he crossed the line he was firing only on three, but still his time was equal to that of Apperson's a year ago.

Although fast time was made in the workouts it did not compare with what was actually done in the climb itself. The practice work was confined to the run from the start to the railroad crossing and in this the Stanley steamer excelled, making the distance in :18⅘. In the climb itself Apperson did :14, although in practice he was clocked in only :19⅗. The Stoddard-Dayton worked in :19⅕, the Stearns in :20, the Kisselkar six in :21⅘, the Chalmers-Detroit in 21⅘, the Franklin six in :23⅘, the Tourist two-cylinder in :26⅕, the Buick in :27, the Marmon in :28⅗ carrying four passengers, and the Oakland in :28⅘ carrying three.

The contest was divided into eleven classes, victories being scored by the Ford, Stoddard-Dayton, Kisselkar, Buick, Kisselkar roadster, Tourist, Chalmers-Detroit 40, Thomas 60, Apperson roadster and the Apperson Jackrabbit. A typical California day greeted the motorists. The start was from the outskirts of Pasadena, the contestants gathering in a large fruit orchard in full blossom. After a slight jog in the road, 1-10 of a mile from the start, the course continued for ¾ mile between rows of cypress trees and beautiful gardens. A wooden platform was built across street car tracks and two slight turns brought the cars to the finish—in the shadow of the Sierra Madre mountains.

Fully 30,000 people turned out for the annual climb, which was held under the auspices of the Automobile Dealers' Association of Southern California. W. K. Cowan and William Reuss managed the affair, Reuss having charge of the starting. There were no delays, the eleven classes being disposed of in 1½ hours. A penalty of $1 a minute would have been imposed if anyone had been late coming to the tape.

Pasadena police guarded the course. They experienced some difficulty in keeping the foolish spectators out of the way of the flying machines. The crowd lined both sides of the course from start to finish. The only protest of the day was registered against Bert Dingley and the Chalmers-Detroit Bluebird. This car was finally permitted to start. Leon T. Shettler, the local Apperson agent, gave Mr. Apperson a farewell dinner the night before the latter left for the east. Summaries of the events:

RUNABOUTS AND ROADSTERS, PRICE $501 TO $1,000, TWO PASSENGERS

Car	H. P.	Time
Ford	20	3:02 1-2
Buick	20	3:45
Reo	20	3:46

RUNABOUTS AND ROADSTERS, PRICE $1,001 TO $1,500, TWO PASSENGERS

Stoddard-Dayton	25	2:28 3-4
Buick	20	2:57 3-4

TOURING CARS, PRICE $1,001 TO $1,500, FIVE PASSENGERS

Kisselkar	30	2:57 1-2
Regal	24-30	3:03 2-5
E-M-F	30	Did not finish
Tourist	22-24	Did not finish

TOURING CARS, PRICE $1,501 TO $2,000, FIVE PASSENGERS

Buick	40	2:36 1-4
Kisselkar	40	2:53 1-4
Oakland	40	2:59

ROADSTERS, PRICE $1,501 TO $2,000, TWO PASSENGERS

Kisselkar	40	2:40
Stoddard-Dayton	25	3:12 1-5

TOURING CARS, PRICE $2,001 TO $2,500, FIVE PASSENGERS

Tourist	45-50	2:29 1-2
Apperson	40	3:02 1-2

ROADSTERS, PRICE $2,501 TO $3,000, TWO PASSENGERS

Chalmers-Detroit	40	1:56 1-4
Kisselkar	60	1:58 1-2
Stoddard-Dayton	45	2:06

TOURING CARS, PRICE $3,001 TO $4,750, SEVEN PASSENGERS

Thomas	60	2:48 1-4
Marmon	50	3:34 1-5

ROADSTERS, PRICE $3,001 TO $4,750, TWO PASSENGERS

Apperson	50	1:55
Franklin	42	1:59
Marmon	50	2:54 4-5

ROADSTERS, FREE FOR ALL, STOCK CARS, INVITATION

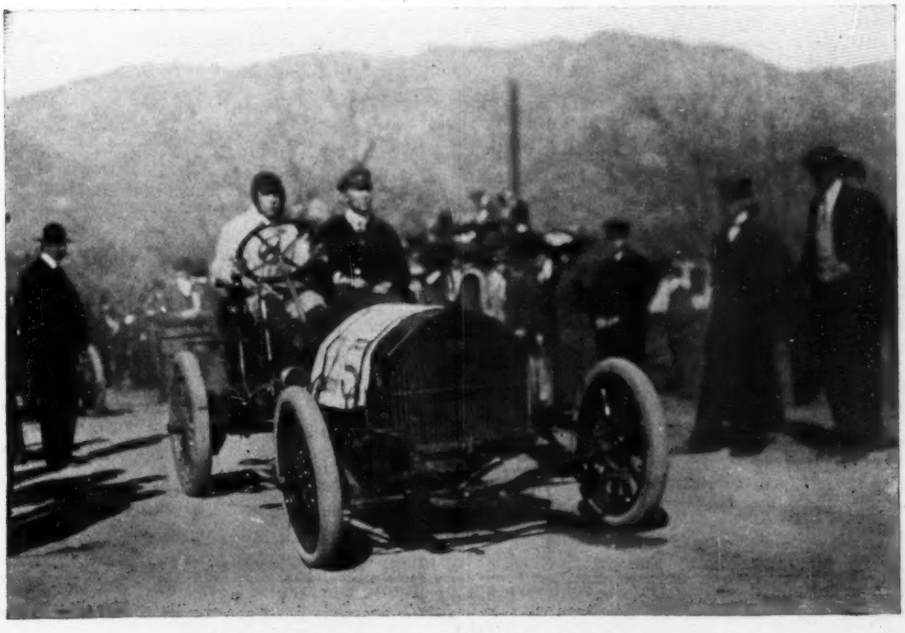
Chalmers-Detroit	40	1:50 1-2
Kisselkar	60	1:55 1-2
Apperson	50	1:58 1-4
Stoddard-Dayton	45	2:00 1-4
Franklin	42	2:01 3-4
Buick	20	2:42 1-2

FREE-FOR-ALL, UNLIMITED, STRIPPING ALLOWED

Apperson	55	1:24
Stearns	45-90	1:29 1-2
Stoddard-Dayton	45	1:36 1-4
Chalmers-Detroit	40	1:50

NEW ONE FOR DETROIT

Detroit, Mich., March 1—With the prestige of J. L. Hudson, Detroit's most famous merchant prince, behind it and with a pair of well known technical experts in active charge, the Hudson Motor Car Co. has formally filed articles of incorporation at Lansing. The capital of the concern is placed at $100,000, all paid in, and the firm has its plans well under way, present headquarters being placed in the old Northern factory, Champlain and Canton streets. Associated with Mr. Hudson are R. B. Jackson, formerly general manager of the E. R. Thomas Motor Co., and George W. Dunham, until recently chief engineer of the Olds Motor Works. It is understood that these men will be factory manager and engineer respectively. Specific announcement of the field destined for the product will be made very soon.



EDGAR APPERSON IN THE RECORD-BREAKING JACKRABBIT

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MOTOR AGE

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The Lubrication Problem

TWO, 3, 4 and 5 years ago, the motor car manufacturer who wished to increase the power of his car, concluded that the only possible way to do such was by increasing the cylinder diameter, lengthening the stroke, or both. Since then, a change has come over the industry and today engineers and makers have discovered the possibilities of increasing the power efficiency of a car 10, 15, and in some cases 20 per cent without adding to the bore and stroke, or adding additional cylinders. In brief, this has been accomplished by improvements in conjunction with the different systems on cars. In some makes the efficiency has been impaired by the cooling system, which has been largely overcome by increasing radiator capacity, a more efficient water pump and redistributed waterjacket volume. With other cars the deficiency has long been due to poor carburation and a new gasoline system with improved carbureter has worked good results. In others, a more scientific construction of the ignition system has produced equally satisfactory returns. On top of all of these has been the problem of motor design, one maker employing the cylinder with valves in the head to increase his efficiency without adding to the bore or stroke. To accomplish another has adopted the L type instead of the T and vice versa. Another has increased the valve diameter. While all of these changes have been working with the one object of increasing the efficiency, nearly every manufacturer has realized the importance of increasing and perfecting the lubricating system.

THE lubricating phase of a motor car has been the one which naturally one would expect the builder to have given primary consideration to, but which has been overlooked in 90 per cent of the cases. The higher speed of the motor parts in a gasoline engine and the consequent enormous demand for adequate lubrication was a problem that was not satisfactorily solved by many manufacturers in the early days. Within the last 2 years the importance of it has been brought to the attention of designers, chiefly by experience gained through owners. The vigilant driver has in analyzing motor troubles discovered how many of these can be traced to faulty lubrication, by which is meant too much oil, or too little, or, as it often happens, too much in one part, not enough in the other, and an uneven flow to all. No other part of the motor has been the subject of more improvement during the past year than oiling, and already results are beginning to show in added efficiency, and in the elimination of trouble caused by sooting of plugs and carbonization in the cylinders.

MUCH of the trouble in lubrication has been due to a vague understanding of the different oils by car owners, and which ignorance still exists in many respects. While the oil manufacturers have been bending every energy towards getting oils suitable for water-cooled motors, air-cooled motors, steam motors, high-speed motors, low-speed motors, high-compression motors, and low-compression motors, the great majority of car owners have been making no effort to study out for themselves the oil situation. It is true, if they purchased oil direct from the manufacturer, there would be every reason to believe a satisfactory product would be secured, but it has so frequently happened that the unscrupulous oil dealer has employed substitution to an amazing extent and to the injury of many cars. Cases are numerous in which the oil sold was not of brand represented, and which proved to be an inferior one, entirely unsuited for motor needs.

The Role of the Show Circuit

SO far this year, and the year is only 9 weeks old, there have been eighteen motor car exhibitions throughout the country, making an average of two a week. A conservative estimate of the attendance at these is one million people. The season of the show circuit is not yet over, there being half a dozen local shows billed to take place before the end of March. The majority of these shows have been held east of the Mississippi, so far only three having been held west of this dividing line. Of the total shows to be held this season, in the course of practically 3 months, three already held have been given national importance, and one yet to be held is of sufficient importance to deserve high recognition. The remainder of them are all of a local nature. With the show circuit of this status the motor car manufacturer is enabled to reach directly one out of eighty people of the entire population. It is supposed that those who attend the motor car shows are interested in the car, either to the extent of being a prospective purchaser or interested in others who are.

IN addition to the actual visitors at all of these shows, a vast amount of enthusiasm is occasioned because of the publicity given to the trade and other of the land, so that for a period of at least 3 months, January, February and March, a vast wave of motoring enthusiasm passes over the country. The value of this cannot be estimated in dollars and cents, and it is impossible to predict the selling possibilities because of this concentration of public attention on the motor car. The enthusiasm is not bounded by the city or state in which the show is held, but permeates the border states and, as is the case with the three national shows, spreads over the entire country. So long as enthusiasm of this nature attends motor car exhibitions, so long should the manufacturers and dealers give them every support. In France one controlling element of the industry has undertaken to prevent future motor car shows in Paris and has decided that the salon, which for so many years has attracted the population of France, has ceased to be a factor. No sooner had this action been taken than small manufacturers of France banded themselves together for the promotion of a show for next season. It is a healthy condition that in America the promotion of a show is not controlled by certain cliques of manufacturers, and it augurs for shows so long as their selling value continues.

THIS is an age of shows and exhibitions. Every new industry has realized the wonderful possibilities of public exhibitions by means of which the public can learn of their many new wares, which otherwise might pass unnoticed. Within the last 2 seasons not a few of the older manufacturing lines have realized the value of them and have started the annual exhibition; the leather manufacturers, the latest exhibitors, although one of the oldest manufacturers. The value of an exhibition to an industry must not be estimated solely from the manufacturers' side. These exhibitions are of prime importance to the purchaser. It is a fact that every careful buyer is not content to buy without having seen what the different manufacturers in that line offer, and in no other way could this be accomplished so thoroughly as through the exhibition. Exhibitions will continue to increase in numbers, providing those who exhibit devote every attention to securing of business, and in the motor car field in particular, so soon as the exhibition ceases, manufacturers would realize it will require a great deal more individual efforts to introduce the car in new fields and to new classes of buyers.

TAFT AND FAMILY IN THIS WHITE STEAMER
TAFT DURING CAMPAIGN IN
GOV. HUGHES OF NEW YORK, IN H
SPEAKER CANNON IN AN OVERLAND
TAFT AND FAMILY IN A STUDEBAK
TAFT IN A
THOMAS IN THE SOUTH
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A Motoring Administration

With the induction into office today of William H. Taft as president of the United States, the United States will have an administration which has endorsed the motor car by putting it into service at the White House instead of the horse, an innovation which is all the more startling because of the attitude of the Roosevelt regime toward the car. President Taft is an ardent motorist and in the last campaign he used the car in many instances, as did the opposition candidate, William J. Bryan—in fact, it may be said it was a motoring campaign. Elected to the presidency, Taft insisted upon having a motor stable and, despite the opposition on the part of some of the senators, congress appropriated $12,000 for motor cars for the president. These machines already have been bought—one of them a White steamer and the other a Pierce-Arrow six-cylinder. Vice-President Sherman has bought a Peerless.

BALTIMORE'S SHOW PRODUCES RESULTS

BALTIMORE, MD., Feb. 27—The largest, best and most successful motor car show ever held in Baltimore is the way the dealers and motor enthusiasts describe the exhibition held under the auspices of the Automobile Club of Maryland for 4 days this week. The show opened Wednesday afternoon at the Fifth Regiment armory and closed tonight. During the entire time of its progress the spacious armory was packed with visitors. It was the first annual show ever held under the management of the club and the fourth affair of the kind to take place in this city. Not only the club members and owners throughout the state, but the dealers themselves are high in their praise of the excellent manner in which the show committee of the club managed the affair. Already the club has announced its intention of making shows under its direction one of the annual events among motorists and dealers in the Monumental City. The dealers likewise have practically made it plain that they will be on hand with exhibits at these yearly displays of the motor art.

GENERAL VIEW OF THE BALTIMORE SHOW IN FIFTH REGIMENT ARMORY

One of the principal causes for the great success of the show was the good luck of the management of the show in securing the Fifth Regiment armory. This is the largest hall in the city and state. Heretofore it has been necessary for those in charge of the exhibitions to select either one of the motor car garages or the Lyric, which have proved entirely too small for the purpose and, consequently, have caused the shows to turn out to be fizzles. This time there was ample space—but not too much—for the displays of all of the exhibitors and plenty of promenade room for the visitors.

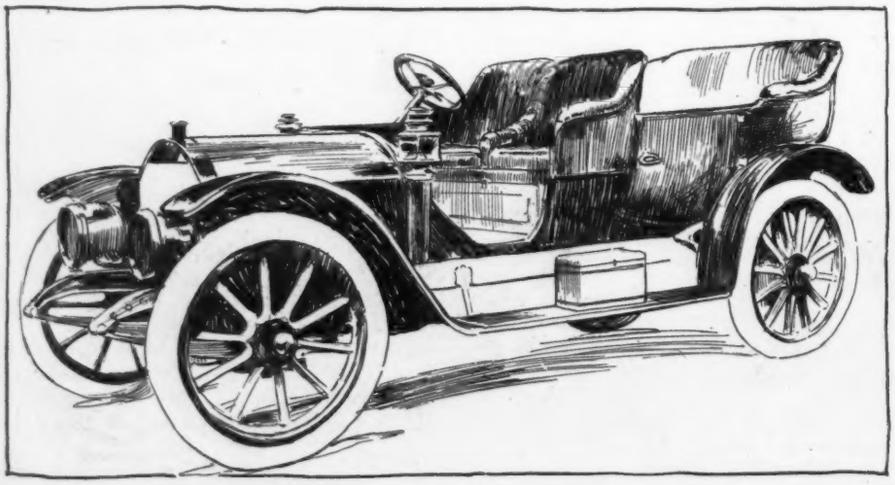
Many Visitors Present

Another conspicuous feature about the 1909 show was the large increase in visitors from outside of the city, and even the state. Motorists from every section, from the mountains of western Maryland, the eastern shore and southern Maryland counties were here. The southern states, particularly Virginia and West Virginia, were also well represented, while a great number of trade men and motorists from nearby northern states were to be seen in the crowds.

Show a Complete One

From the standpoint of the dealers of both motor cars, accessories and motor cycles the show was a great success. Many good sales were made as a result of the show and the dealers are now busy in their efforts to fill their orders at the earliest possible time.

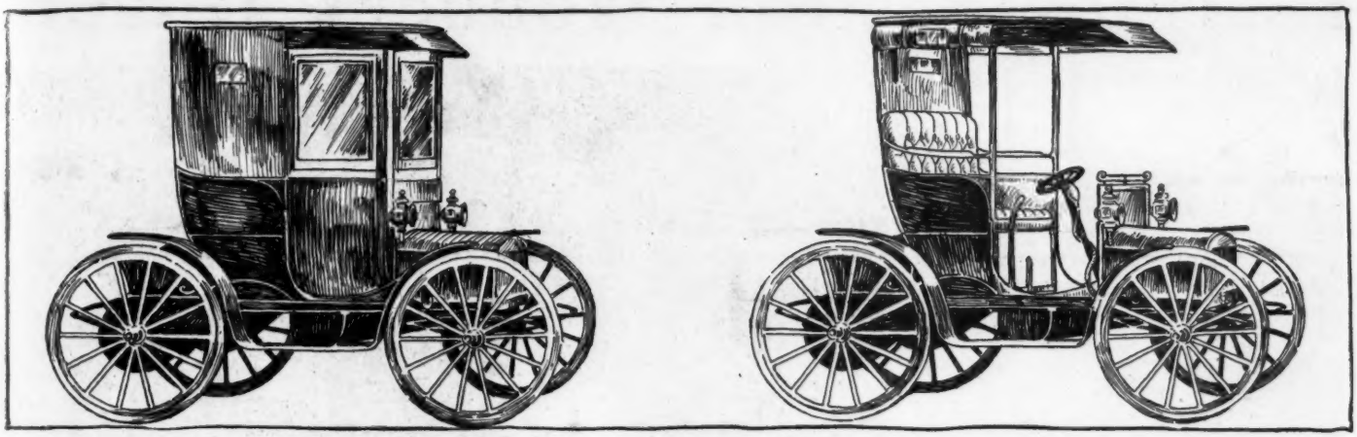
There were 120 cars on the floor of the big armory, which covers the area of a full city block, while the exhibitors numbered forty-four. These included in addition to the motor car people, dealers in accessories, motor cycle tires, motors and motor boats. The cars displayed represented thirteen makes of cars which never have before been seen at a Baltimore show, agencies for most of which have been established in Baltimore just recently. These newcomers include one manufactured in Baltimore and another in Havre de Grace, Maryland, and still another from Washington, D. C. The others are from various points throughout the country, with the exception of the Renault, which is the first foreign car to be shown here and the first one to have an agency in the Oriole City. There is also a second car made in Baltimore and which attracted considerable attention. That is the Maryland, manufactured by the Sinclair-Scott Co., which car, however, has been on the market several years, and has been at previous shows.



THE SPOERER, ONE OF THE CARS MANUFACTURED IN BALTIMORE

New Cars Are Shown

The St. Clair-Scott Co., of this city, which manufactures the Maryland exhibited at the show, has not attempted anything radical in car construction, employing a 28-horsepower motor with four separately-cast cylinders with valves in the head. Ignition is a low-tension system with a Splitdorf magneto as the current source. Combined in the transmission system are a leather-faced cone clutch and a three-speed selective gearset, with the final transmission through a propeller-shaft. Combined in this running gear are such features as I-beam front axle, internal and external rear wheel brakes, semi and elliptic rear and front spring and pressed steel frame. The bearing situation in the car is a conventional one with white bronze bushings for the crankshafts and conical



TWO TYPES OF MOTOR BUGGIES MADE BY BURNS BROTHERS, OF HAVRE DE GRACE, MD.

roller bearings for the axles. The wheelbase measures 114 inches, tires are 34 by 4, and the car is fitted with either touring or baby tonneau body.

Spoerer Car On View

The Carl Spoerer's Sons Co. manufactures the Spoerer car, which is of the four-cylinder type with 4½ by 5-inch water-cooled cylinders, cast separately. A leather-faced cone clutch is used and the three-speed selective gearset employs Krupp nickel steel and Hess-Bright bearings. Drive is by propeller-shaft to a floating rear axle, the housing of which is of the pressed steel type and of Timken construction. In the running gear an I-beam front axle is made use of; internal and external brakes are employed on the rear hubs and 36 by 4-inch tires are fitted. Semi and elliptic springs are made use of in front and rear; honeycomb radiators are employed, and on the motor the Bosch dual ignition system is fitted.

Two styles of Stanley steamers were exhibited, the more attractive being the two-passenger model runabout which has an 18-inch boiler and burner located in front under the hood. It is rated at 10 horsepower. The exhibit also contains a model F five-passenger touring car with a 23-inch boiler, which car is rated at 20 horsepower.

Burns Motor Buggy

Burns Brothers, carriage builders of Havre de Grace, Md., have entered the motor business since last fall and showed a transformable coupe suitable for physicians' use. It is a motor buggy type with 14 horsepower and two-cylinder opposed air-cooled engine carried under the hood. Transmission is by friction to a jackshaft and thence by side chains to the wheels. The frictions are ball-bearing and there is one inside-controlled lever. A reinforced wood frame is employed, the reinforcement being an angle iron member. Wheel steering is employed, as are Timken axles and elliptic springs. The wheels are 40 and 42 inches high and fitted with solid or cushion tires.

The Washington cars shown were the Brush runabout, Brush package cars and mail cars by the Brush-Nichols Co., of the Capital City. The other cars new to Baltimoreans from a show standpoint in addition to the Renault and others described were the Gaeth, Rambler, E-M-F, Chalmers-Detroit, Oakland, Reo, Lozier, Palmer & Singer and Rauch & Lang electric.

New Ideas On Accessories

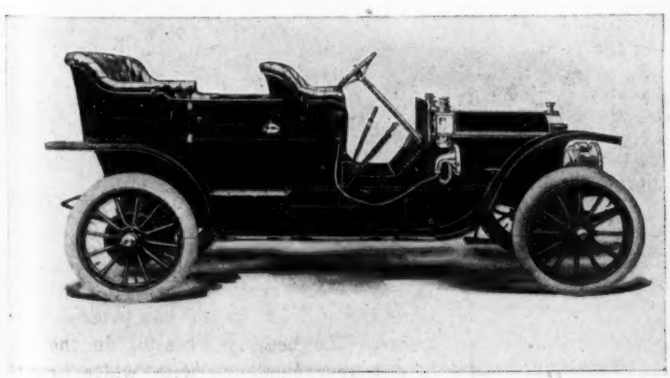
The very newest thing in the accessories line displayed at the show was the Autolight igniter and controller, patented by the International Mfg. Co., of Balimore. Demonstrations with the igniter and controller were given by Alfred Clarke on a Kisselkar. The device is for lighting and controlling gas lights of a motor car; the driver can control the light from his seat either while the car is going or standing still. The device lights the lamps without the use of matches, and lights can be raised or lowered at will.

The Vim motors were shown here for the first time by Frank B. Burton, who is the local agent. The motors exhibited were a 5-horsepower single-cylinder, 9-horsepower single-cylinder, 10-horsepower two-cylinder, 15-horsepower three-cylinder, 18-horsepower two-cylinder and a 35-horsepower three-cylinder racer.

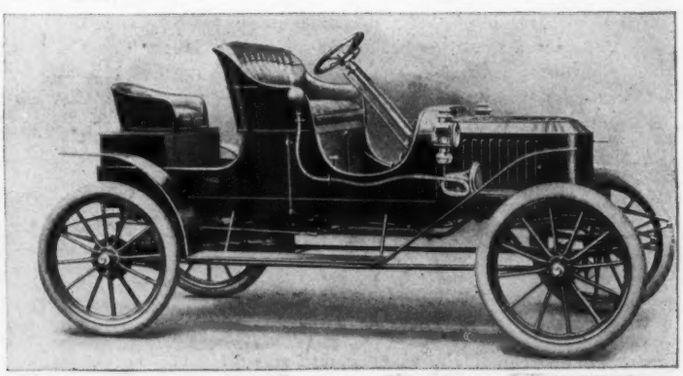
Besides the package and mail cars shown by the Brush-Nichols Co., of Washington, the only other commercial car noticed was a delivery wagon at "Little Joe" Weisenfeld's booth. That was a Hart-Kraft vehicle with solid tires. It is an 18-horsepower wagon.

List of Exhibitors

Rice's Garage—Welch, Pennsylvania and Rauch & Lang electric.
Mar-Del Mobile Co.—Packard, Franklin, Waverly electric.
Auto Outing Co.—Buick, Palmer & Singer.
Olds Motor Works—Oldsmobile.
Foss-Hughes Co.—Pierce-Arrow.
Winton Motor and Carriage Co.—Winton.
"Little Joe" Wiesenfeld—Reo, Oakland; accessories.
Zell Motor Car Co.—Peerless, Chalmers-Detroit.
Motor Car Co.—Thomas, Stevens-Duryea and E-M-F.
James G. B. Davy Co.—Accessories.
W. P. Shuler—Mitchell.
H. A. Broadbelt, Jr.—Stanley steam car.
Auto Equipment Co.—Rambler; accessories.
New Bridge Garage Co.—Cadillac.
D. A. Clark, Southern Auto Co.—Lozier, Pope-Hartford.
Dixon C. Walker—Studebaker, gasoline and electric.
Carl Spoerer's Sons Co.—Spoerer car and Goodyear tires.
Shaffer Mfg. Co.—Pullman car.
Brush-Nichols Co., Washington, D. C.—Brush.
Ford Auto Co.—Ford.



MARYLAND, A 28-HORSEPOWER, BALTIMORE-MADE CAR



MODEL E STANLEY STEAMER OF RUNABOUT TYPE

AS THE BUFFALO SHOW APPEARED ON THE OPENING NIGHT

F. H. Sandruck—Gaeth.
Lambert Auto Co.—Maxwell.
Baltimore Buggy Top Co.—Tops and windshields.
Stoddard-Dayton Baltimore Auto Co.—Stoddard-Dayton, Renault.
Mount Vernon Motor Car Co.—Autocar.
J. L. B. Wilhide—Kisselkar.
Charles E. Houghton—Overland.
E. A. Cassidy & Co—Jones speedometer, Monogram oil.
Burns Brothers—Burns.
Automobile College.
Hecter C. MacRae—Champion accumulator.
Baltimore Rubber Tire Co.—Springfield-Kelly tires.
Maryland Railway Electric and Supply Co.—Witherbee igniter.
Standard Oil Co.
National Sporting Goods and Auto Apparel Co.—Tires and accessories.
Thomas G. Young—Stearns.
Jones Machine Co.—Keystone lubricating oil.
Howard A. French—Pierce and Indian motor cycles.
Frank B. Burton—Vim marine motor and Niagara power boats.
Great Eastern Optical Co.—Accessories.
Sinclair-Scott Co.—Maryland.
White Garage—White steamer.
Automobile Club of Maryland.
E. R. Elliott & Co.—Insurance.

BUFFALO PRODUCES GREAT MOTOR CAR SHOW

BUFFALO, N. Y., March 1—An epoch in the history of the motor world was reached in this city tonight with the opening of the Buffalo motor car show under the auspices of the Automobile Club of Buffalo and the direct supervision of Manager Dai H. Lewis, secretary of the club. The exhibition will close March 6. Convention hall, the place where the event is being held, presented a superb appearance when it was formally thrown open to the public at 7:30 this evening. The decorators and staff workers left no stone unturned in their effort to transform the spacious hall into a veritable garden of grandeur. The decorations in red, pink and gold, and the clusters of electric stars used for the purpose of illumination produced a brilliant effect. With the opening of the doors, throngs of gaily-attired spectators crowded the aisles. From the hall balcony, strains of sweet music, rendered by an orchestra and band, added to the harmony of the occasion.

Lack of Room

The only real draw-back which the management has experienced is lack of room. When the official allotment of space took place 2 weeks ago, it was found that with but space for but eighty-five exhibits, there were 125 applications to be filled. Some of the difficulty in this respect was alleviated by the arrangement of the exhibits. Where, in former years, there has been space left between each exhibit so as to afford frequent cross aisles, this year the plan has been to arrange the exhibits as compactly as possible about the outer portion of the hall and then in two double rows extending the entire length of the floor, with but a single cross aisle in the middle of the hall.

Pierce-Arrow Display

The space occupied by the Pierce-Arrow Motor Car Co. is among the most attractive exhibits of the show. Among the cars that it is showing is the six-cylinder 60-horsepower Louis XVI. car, which was shown at New York. The exhibit is in charge of E. C. Bull, local manager.

The exhibit of the E. R. Thomas Motor Co., another large local manufacturers, is in charge of Mr. Vandusen. The completeness of the display is emphasized by a general exhibition of all its models.

The Babcock Electric Carriage Co., a local manufacturing concern, has an attractive exhibit, in charge of F. A. Babcock and R. J. Lata. It is showing a line of electric carriages, among which is the model 12, gentleman's roadster, finished in ivory, white and red. This roadster is a new model.

Brunn in Two Roles

The Brunn Automobile Co., another local concern, is this year handling the Franklin and is showing three chassis, three touring cars and two runabouts. The Brunn Carriage Co., an allied company, is exhibiting two neat carriage bodies, which are manufactured in Buffalo.

Although there is plenty of novelty in this year's show among the different exhibits, the only actually new car that has been sprung is a neatly built six-cylinder toy tonneau touring car, which is placed upon the market for the first time by its manufacturer, the Austin-Lyman Co., of this city. The frame is pressed nickel steel of deep channel section, offset over the rear axle to give freedom to the springs. The front axle is made of drop forged chrome nickel steel of I-beam section, with ball-bearings in the heads of steering knuckles. The rear axle is of floating type, with all weight carried on a tubular casing. The differential is of the gear and pinion type. The springs

are semi-elliptic, and 36-inch front and rear wheels are used. A multiple disk clutch is carried in the forward end of transmission case housing and has forty-eight disks. The transmission is selective, with four speeds forward and reverse. The direct drive is on third speed. There are two sets of exceptionally large brakes, both internal, expanding metal, on rear wheels, and cardan shaft drive, with two universal joints. F. & S. annular ball-bearings are used throughout, except in the engine bearings. The standard body is of runabout type with detachable toy tonneau. The other types are made to order. The car is finished and upholstered to suit the buyer's taste.

112 Cars Are Shown

An interesting feature of this year's show is the increased number of cars shown, there being 112 cars on exhibition, while last year but eighty-nine cars were displayed. This increase is due to the larger number of exhibitors and also larger exhibits. There are also a goodly number of chassis shown this year, there being a total of nine displayed. Nineteen factories are directly represented at the show this year, which is more than last year. The number of accessory makers represented this year totals fourteen, also an increase over last year. Forty-two makers, all told, are represented.

Among the features of the show which stand out prominently is the desire on the part of most all the exhibitors to establish agencies and to boost retail business generally. While the event is treated by some as merely a place for the dealer and manufacturer to show off the fine points of his car, still it has come to be the rule with many exhibitors that it is a place to do real business and to tie up good money-paying contracts. Another thing about the show is the effort made on the part of many dealers to do some foreign business, and especially to open up the trade in Canadian cities. This object is easily attained because of the large number of visitors from across the border.

Besides the line of cars which are shown, the accessory maker comes in for his share of attention. Every possible accessory which is ever seen in a motor car is on exhibition. Aside from the standard equipment, which is well known to car drivers, there are two or three new articles on display which are worthy of consideration. One of these novelties which has just been invented by Mrs. S. C. Partington of this city is a motor car protector which is automatic in its operation. It is connected with the garage doors and is raised by the opening of the door and lowered over the machine when the door is closed. The protector is made of khaki waterproof material.

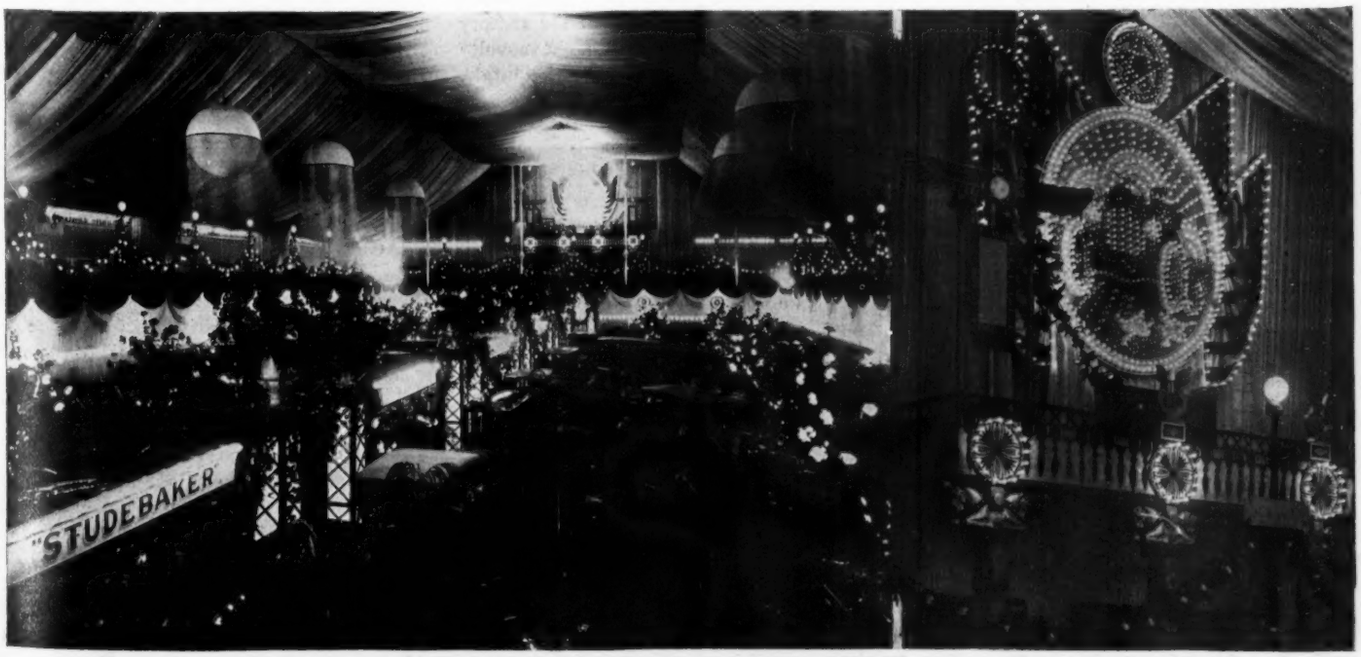
The Iroquois Rubber Co., of Buffalo, is showing a steering grip made of rubber, which laces over the rim of the steering wheel, giving a firm hold on the wheel and preventing slipping. Theodore P. Weinhard, of Buffalo, has a new lamp attachment, which he is showing for the first time. By means of a coupling which can be attached to the bottom of any lamp, the motorist can burn kerosene instead of using electricity or acetylene.

The Bicalky auxiliary spring and shock absorber shown consists of a two-part coil spring attached to the frame or the spring, the inner end of the coil being continued in the form of an arm extending to either the frame or the spring according as to whether the coils are carried on the spring or frame. Both the coils are formed out of one piece and are clamped to the frame or spring by the flat portion between them.

Tire Elastic is a rubber compound intended to be forced into the tire and used to give resiliency instead of air. It is exhibited by the Chester Auto and Tire Frame Co.

List of Exhibitors

Centaur Motor Co.
Austin Lyman Co.
Fargo Electric Garage Co.
Poppenberg Motor Car Co.
Brunn & Co.
Maxwell-Briscoe-Buffalo Co.
Frank C. Garvin
J. M. McKinnon
Iroquois Rubber Co.
E. R. Thomas Motor Co.
Buick Motor Co.
Mason B. Hatch
Buffalo Automobile Exchange.
Babcock Electric Carriage Co.
F. G. Crone
National Welding and Mfg. Co.
Jaynes Automobile Supply Co.
Loxit Motor Lock Co.
H. D. Taylor Co.
W. F. Polson
American Motor Truck Co.
Leo Wertheimer
Meyer Carriage and Wagon Co.
E. E. Denniston & Co.
Pierce-Arrow Motor Co.
John W. Fry
Kane Motor Supply Co.
Dixon Brothers
Louis Engel, Jr.
Ralph E. Brown Motor Co.
Brunn Carriage Mfg. Co.
W. R. Densmore
J. A. Cramer
Co-Operative Motor Car Co.
C. H. Bicalky
Knoll & Turgeon
C. E. Miller
Commonwealth Motor Machine Co.
Auto Car Equipment Co.
F. F. Rick Co.
Seaman's Auto Water Heaters.
J. Strauss & Son
Mathew Strauss
Warner Instrument Co.
J. R. Koen
J. G. Lewis
Niagara Motor Works
Pierce Cycle Co.
Clarence M. Rogers
Swinehart Clincher Tire and Rubber Co.
Vim Cycle and Hardware Co.
National Battery Co.
Auto-Bi Co.
Buffalo Gasoline Motor Co.
Chester Auto Co.
Empire Sales Co.
Empire State Tire Co.
Fedders Mfg. Co.
E. E. Ferree
Firestone Tire and Rubber Co.
Fisk Rubber Co.
Ford Motor Co.
Franklin Automobile Agency



General View of Cleveland Show and Electric Design, Feature of Display

MAGNITUDE OF THE OMAHA SHOW SURPRISING

OMAHA, NEB., Feb. 27—Some idea of the magnitude of the Omaha show, which closed tonight, can be had from the statement made by Clarke G. Powell, secretary and treasurer of the Omaha Automobile Show Association, under whose auspices it was held, that fully 20,000 persons visited the Auditorium during the 4 days from Wednesday morning at 9 o'clock until the close, Saturday night at 11 o'clock. With a predicted daily attendance of 3,000 actually increased to 5,000 after the doors had been opened, all of the vented enthusiasm among the dealers was amply justified. Two years ago the management was well satisfied, if not elated, over an attendance of 10,000 for the entire show, but this year eclipsed all other records by as many more. The beauty of it all was that there was absolutely no disorder, crowding or pushing in the aisles.

OMAHA SHOW—MAXWELLS DISPLAYED IN FOREGROUND

Starting with a total of twenty-five exhibitors showing over a hundred different models, representing thirty-eight manufacturers, the exhibit was increased after the first day by the addition of four more exhibitors with six models representing as many factories, and a gasoline-driven air compressor. These late exhibitors were the Lincoln Automobile Co., showing two models of the Winton six; the Matheson company, showing the Moon, Matheson and Gleason; the Central Implement Co., with the Schacht; the Pioneer Implement Co., with the Detroit electric, and the McKeen Motor Car Co., with its air compressor.

The individual exhibits came up to expectations. Owing to the limited amount of space available, many of them were limited to three or four models, while others had ample space to show as many as ten models.

The Velie exhibit, shown by the John Deere Plow Co., attracted considerable attention owing to the fact that the car is new in Nebraska. The exhibit consisted of a stripped chassis made especially for this show; a polished rear axle from the Timken Roller Bearing Co., exhibited at the Chicago show; a model A touring 30-horsepower four-cylinder and a model B 30-horsepower four-cylinder roadster. Major Fuller, the designer of the Velie; William L. Velie, president of the company, and Charles Velie, of Minneapolis, were in almost constant attendance at the booth, and were optimistic over the outlook for the car in Nebraska.

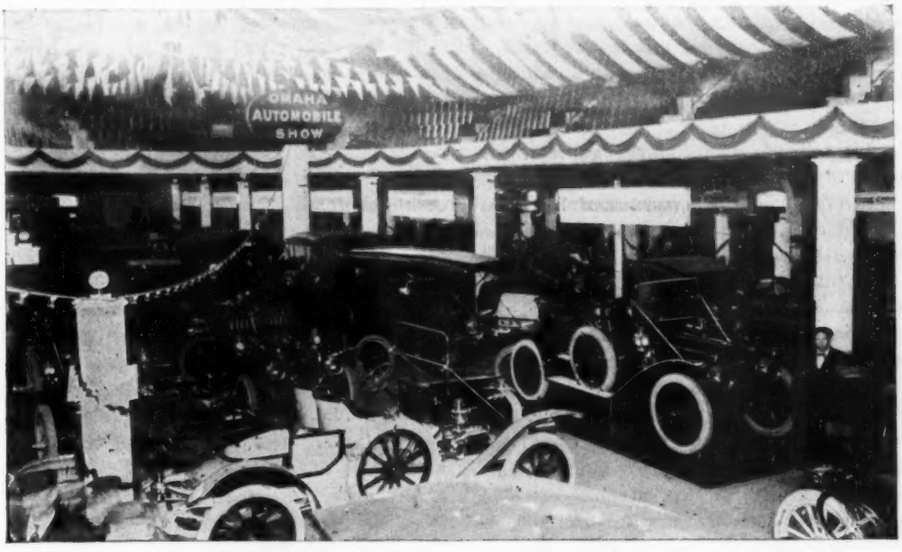
The Mason Automobile Co., which recently has increased its capital stock to $250,000, all of which has been provided for, expects to turn out 800 cars this year. A number of improvements have been made in the new Mason for this year. The Mason motor is of the two-cylinder opposed type with 5-inch bore and 5-inch stroke and is made entirely at the factory of the Mason Automobile Co. A novelty in conjunction with it is that the intake pipe is formed integrally with the crankcase and cylinders and the carbureter attached directly to the crankcase. This construction eliminates joints, sharp turns and pockets, and has been designed to eliminate condensation of the mixture. The usual processes of construction are followed throughout, cylinders and pistons being ground. The inlet and exhaust valves, mechanically-operated, are seated directly in the cylinder heads, dispensing with the use of valve cages; the valves, 2⅛ inches in diameter, are made with nickel steel heads and carbon steel stems. The ends of the stems, against which the rocker arms bear, are hardened. The stems are ground to exact size for the valve guides. In timing the valves the clearance obtained by doing away with the valve cages as well as the timing used are claimed to result in greater power at high and low motor speeds. The crankshaft is a drop forging ground on all bearing surfaces and carried on die-cast Parsons white bronze bearings. The cams are formed integrally with the camshaft in the forging process, and the timing gear is bolted to a flange on the camshaft. The drop forged connecting rods are grooved on the upper side for oiling purposes, the oil being carried to the bearing at each end in the grooves. The cap on the crankshaft end is secured with two studs with a special thread and is held by two jam nuts secured by a lock nut and cotter pins. Brass shims are provided for the adjustment of the bearings. Motor lubrication is by Lavigne oiler incorporated in the central part of the crankcase. Ignition is by a Splitdorf magneto in combination with a set of dry cells. The spark-control lever is located on the steering wheel. The transmission of the planetary type, with two forward speeds, is of the company's design, and uses steel gears. The clutch is a part of the transmission set. In the running gear use is made of a pressed steel frame, semi-elliptic springs in front and elliptics in the rear.

OMAHA SHOW—MASON, A TWO-CYLINDER WESTERN CAR, ON EXHIBITION

BOSTON PROMISES AN EXTRA-LARGE DISPLAY

BOSTON, MASS., March 1—The annual motor show will be opened in this city next Saturday night. This morning the carpenters were allowed access to the building and they started with a rush to transform the place from a barren hall to a system of spaces for the motor cars. The decorators will begin work tomorrow and from then on everything will go along with a rush. Some of the cars will be placed in the building Friday and it will be a case of working all night to get ready for the opening. Boston expects to show something like 175 different models of motor vehicles, something like thirty-five different makes of motor cycles, while the accessory end will be greater than any previous show as regards the matter of space. The music and soloists for the week will be of the best. The Empire Women's Orchestra, Miss Rita Mario conductor, will occupy the band stand erected especially for the show in the center of Grand hall. Mme. Louise Arnold Kenyon will be the soprano soloist. In Exhibition hall the Imperial Ladies' Orchestra will be heard with Miss Katharine Connors director, and Frank V. Russell xylophone soloist. In departments C and D, Russell's orchestra will hold forth with F. V. Russell, leader. On this floor will also be located the café.

A midwinter endurance contest will be held from New York city to Boston on March 11 as a show boomer. Three years ago Chester Campbell, the manager of the Boston show, offered a trophy for a run of this kind, which was won by L. H. Perlman. The trophy is a silver cup 20 inches high, and it has been turned over by Mr. Perlman with the request that it be contested for again this year. A sanction for the run has been granted by Frank B. Hower, chairman of the contest board of the American Automobile Association. L. M. Bradley, of the American Motor Car Manufacturers' Association has been chosen as referee. The object of the run is to show that the modern motor car is capable of maintaining a legal speed limit over all conditions of road in midwinter. The start will be made from Columbus circle, New York, at 8 a. m. on March 11, and the finish will be at the main entrance of Mechanics' Hall, Boston. Checking stations will be established at New Haven, Hartford and Worcester. The distance is 243 miles, and the actual running time set for the contest is 12 hours and 9 minutes.



OMAHA SHOW—EAST END OF AUDITORIUM

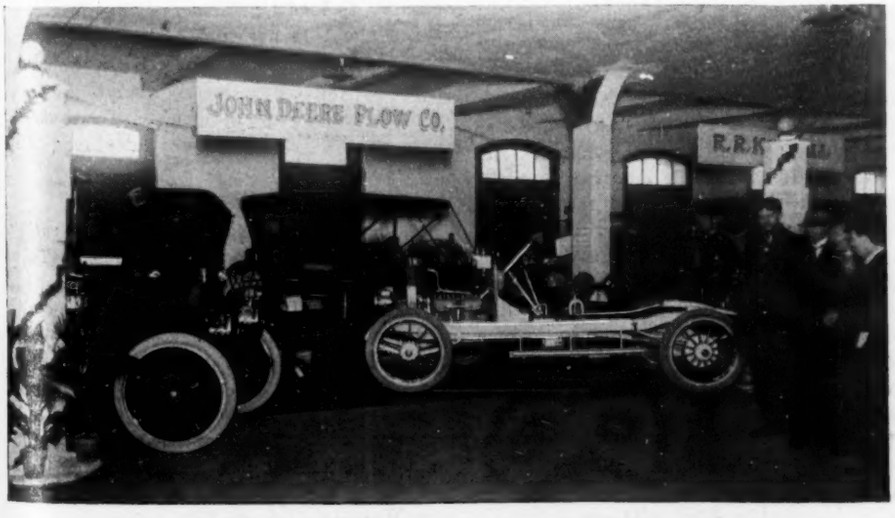
HARTFORD HAS A WINNER

Hartford, Conn., Feb. 27—Hartford's motor car exhibition terminated this evening. It proved to be eminently satisfactory and successful and the attendance, despite 2 days of hard rain, was very good. Many sales are reported and much good was accomplished. R. D. & C. O. Britton report the sale of six Maxwells; Brown, Thomson & Co., one Packard 30, two Stevens-Duryeas and seven of the Cadillac 30. The Mitchell agent reports the sale of four cars, the Ford nine, Stanley two, Rambler four, Buick two, Knox two, Thomas Flyer two, Oldsmobile one, E-M-F three, White steamer one and Overland three. The sales are reported to total up fifty, and considering that the season is still very early and Hartford has but a population of 100,000 or slightly over, the showing is indeed very good. The outlook for the approaching selling season was never brighter. The field has been augmented by several new cars, including the Overland, Stoddard-Dayton, American roadster, Regal and others.

Thursday evening of this week after the motor car show the Hartford Automobile Dealers' Association held a banquet at the Allyn house. There was a good attendance and many on the way up from the show came through Trumbull street during the Walder block fire.

President Ralph D. Britton, of the dealers' association, presided as toastmaster. The first speaker was Edward W. Hooker, mayor of Hartford, who proved a witty talker. Assessor P. Davis Oakey lived up to his past reputation as an after-dinner speaker and as tax assessor could not quite comprehend why the mayor should have placed a valuation of $500 on his $4,000 car. State Highway Commissioner James H. MacDonald enlightened the multitude on the state road improvement problem and introduced many facts and figures, all of which he had at his fingers' ends.

Practically the first public showing of the Maxim tire inflator was at the Hartford show. The useful little device was attached to the Cadillac 30 chassis and proved to be of much interest to those who have had to resort to the manual manipulation of a pump in the past. The device is manufactured by the F. A. Law Machine Co. The inflator is actuated from the dash. Brown, Thomson & Co. have the local selling agency.



OMAHA SHOW—VELIE CARS REPRESENTED ON THE FLOOR

TARIFF CUT MEANS WAGE READJUSTMENT

NEW YORK, March 2—Arguing that a motor vehicle of any kind can be made in Europe for 60 per cent of the cost thereof in America largely because of the labor proposition, E. P. Chalfant, general manager of the Association of Licensed Automobile Manufacturers, today brought out some vital points on the tariff that have not been discussed heretofore. Chalfant declares the present agitation for a reduction in the tariff is a workingman's fight and that a reduction in duty means an immediate readjustment of wages.

"The brief on the tariff subject, prepared by the associated motor car manufacturers, including members of the Association of Licensed Automobile Manufacturers, the American Motor Car Manufacturers' Association and the National Association of Automobile Manufacturers, was so exhaustive in its treatment of the subject that various interesting and vital points have been overlooked or undervalued by many," says Chalfant. "It should always be borne in mind that the motor car factories of this country constitute directly an investment of over $100,000,000, employ upward of 100,000 men, and have an annual production at present of at least 75,000 motor vehicles. The beneficial effect on the country from the production and use of the machines is much more far-reaching than these figures would indicate. Figures for the whole country recently published show that within the last 10 years nearly 300,000 cars were registered with the authorities of the various states of the union. These figures are misleading; that is, in most of the states, the licenses granted being perpetual—relicensing annually not being required. Superficially the number of registrations may be taken to indicate the number of machines in actual use, without allowance for those which have gone out of the country or out of use entirely, or been sold as second-hand machines.

Estimated Number of Cars

"At the office of the Association of Licensed Automobile Manufacturers, it is estimated that a one-third reduction should be made for the above-mentioned reasons, and that there are running today in this country 200,000 motor cars, propelled by gas engines, electric motors and steam engines. The members of the Association of Licensed Automobile Manufacturers alone have produced over 110,000 gasoline cars in the last 6 years.

"In round numbers the American motor car manufacturers pay $35,000,000 annually in wages for work done in motor car factories alone. This does not include the wages paid for labor done on material before it is brought into these factories, from some 4,000 allied establishments throughout the country; or the salaries paid in the motor car factories.

"Pretty nearly everyone nowadays concurs in the opinion that the tariff on motor cars should adequately protect the American workman against the low wages paid abroad, which is simply in conformity with the fundamental idea of the doctrine of protection. Labor costs in America about two and one-half times what it does in Europe. The matter of wages is a paramount question—a leading factor of all successful business and all prosperity. In this sense the present agitation for a reduction in the tariff on imported motor cars is the workingman's fight. Upon a reduction of duty would immediately follow a matter of readjustment of wages. A motor vehicle of any kind can be made in Europe for 60 per cent of the cost thereof in America.

"The manufacture of commercial motor vehicles is yet in a process of evolution in America. It is natural that a large volume of commercial machines should follow the manufacture of pleasure cars, the engineering of which fundamentally applies to business vehicles, but the shop equipment of which in large part is not suitable for making the much heavier parts of commercial vehicles.

Comparatively Few Survive

"The American pleasure vehicle manufacturers have had to devote all their talent, energy and money in the strenuous business of producing pleasure cars on a paying basis; only a few have succeeded; scores are still striving. First and last over 600 companies have started to make motor cars in the United States. Considerably over half of them are now out of business—a very eloquent fact.

"It would be extremely unfortunate to deprive the American commercial vehicle of the tariff protection which will insure its complete development; which would be to open the American market to the commercial vehicles now coming forward in the European markets. The evidence is to the effect that the commercial vehicle made in the highest class possible of material and workmanship, in order that it can have the largest possible life and least annual depreciation or cost of upkeep consistent with the state of the art, has practically the same relation between labor and material as the pleasure vehicle. Accordingly it should be allotted a tariff scale at least equal to that of the pleasure vehicle; if the American workman is to receive adequate benefit, to say nothing of the importance of the machine as an economic factor in production and distribution from firm and factory. Our present tariff protects the motor car, as well as other older similar products of the United States, from the unfair competition of European labor, the recompense of which is based upon conditions of life such as no intelligent American workman could contemplate without dread.

"The French motor car industry has recently passed through a very serious crisis, of which the after-effects will be felt for a considerable time. This state of affairs is to be ascribed to the universal business depression, as well as to serious mistakes made by some of the firms. Workmen in French motor car factories are divided into three classes: 1, mechanics; 2, assistants; 3, unskilled workmen. The first may be sub-divided into: a, turners and joiners; b, assemblers; c, drillers. The turners and joiners draw an average pay per hour of 18 to 24 cents; the assemblers, 16 to 22 cents; the drillers, 16 to 20 cents. The 'assistants' are workmen who show some ability as mechanics and are employed gradually on certain work requiring a material amount of skill; they are paid 12 to 16 cents an hour. The less skilled draw from 10 to 12 cents an hour. One leading French factory pays apprentices 4 cents an hour the first year; 7 cents the second year, and 10 cents the third year. A foreman receives from $75 to $80 a month.

"In the commercial department of French motor car factories, salaries begin at $20 per month. Bookkeepers are paid $40 a month on the average; and technical employes and mechanical engineers, $60 a month. Of course, some of the leading officers and technical men receive much higher pay. The economic condition of the French working class is from a European standpoint very favorable; wages being higher than those paid in other continental countries. Food and lodging prices are low, comparatively. The French workingman is the world's champion bread-eater; bread, together with vegetables, being a very considerable part of his diet. Bread costs 4 cents a pound. The average price of beef is 18 to 23 cents a pound. Wine is cheap and consumed in large quantities. House conditions are not good hygienically; a workman's lodging generally consisting of one room and a kitchen, costing $50 to $80 a year, according to location. Houses and flats are taxed about 14 per cent of the rent, if in excess of $75 per annum. In the department of the Seine, where almost all the French motor car factories are situated, over 50,000 workmen are employed in motor car factories.

Conditions in Germany

"Conditions in Germany are generally very similar to those in France. The American 1907-08 financial depression was much felt. All factories are working with reduced force; the number of unemployed being much larger than usual, and the wages 15 to 18 per cent lower than heretofore. The average wage of skilled workmen in German motor car factories is said to be 11 cents an hour. Apprentices receive ⅓ cent per hour the first year; ⅔ cent the second year; 1⅔ cents per hour

the third year. A workman's dwelling of two rooms costs $6 a month; of three rooms $7.20 to $9.60, according to location. Unmarried workmen pay 84 to 96 cents per week for furnished lodging and breakfast coffee.

"The income tax, which very possibly will exist in this country in the event of materially decreased tariff duties, with consequent necessarily decreased revenue with which to run our government, is levied on yearly incomes in excess of about $300, beginning with a levy of 3.1 per cent, proportionately increased by town taxes. Pork costs 21 to 24 cents a pound; beef 20 to 21 cents; a 4¼-pound loaf of bread 9 cents.

Situation in England

"Complaints are heard everywhere in London of the condition of the motor industry in England. Average wages per hour are: Blacksmiths, 16 cents; machinists and assemblers, 18 cents; patternmakers, 16 to 18 cents; apprentices, 4 cents; bodymakers, 20 to 24 cents; trimmers and painters, 18 to 22 cents; lower grade workmen, 14 to 16 cents. In England, where little or no protection is afforded by tariff, and where the conditions of living, the self-respect and intelligence of the labor element more nearly approximate the similar conditions in America, it has been fully realized that if the English motor car industry is to survive, there must be enacted there at once just such protective measures as now exist in the United States against the product of continental labor, and its periodical overproduction and price-cutting.

"The condition of the motor industry in Italy is very bad. Out of some sixty factories which were in operation at the beginning of the year 1907, recent reliable reports indicate that not more than five are now actively engaged in the manufacture of motor cars. Wages for labor are the lowest on the continent, being about 25 per cent less on the average than the respective wages paid in Germany. Generally speaking, the Italian workmen live on onions, garlic, bread, breadstuffs and wine; meat and the like being considered luxuries for feasts and great occasions."

HOOSIER SPRING OPENING

Indianapolis, Ind., March 1—A meeting of the committee from the Automobile Club of Indiana, arranging for the annual spring opening of local motor car dealers and manufacturers, was held in Indianapolis Saturday night. The opening will be held during the week beginning March 22, each dealer exhibiting in his own place of business. At the meeting, plans were made for a large illuminated parade at night, when prizes will be offered for the best illuminated and decorated cars in various classes. It was decided to eliminate the hill-climb, which has been given in past years, because of the fact that such events usually mean considerable prominence for one or two cars, while the work of others is lost sight of. An obstacle race will also be held on the Capitol avenue boulevard, while there will also be a contest for garage employes, prizes being awarded for making certain adjustments and for the persons taking off a tire and replacing it in the shortest length of time.

Cleveland Motor Show Followed by Road Tests

Cleveland, O., March 1—Two mud trips, one a road race for a $100 side bet, the other a dash to Toledo and return over terrible roads, marked the closing days of the Cleveland show. The race was between the Cadillac and Jackson, the other an endurance test of a four-cylinder Maxwell roadster. For some time feeling has been high between the local Cadillac and Jackson forces, culminating in a challenge to the Jackson people for a race to Akron and return Saturday for a side bet of $100, the Cadillac 30 being used against the Jackson. By mutual agreement the contest was held under the auspices of the Cleveland Plain Dealer. The distance was 80 miles, 40 each way. Over 60 miles was through mud almost up to axles, so deep that low gear was used a good portion of the time. The Cadillac came through with no trouble in 5 hours 25 minutes, winning the money, while the Jackson went into a ditch, jamming the gear-shifting lever so badly that it was impossible to get into low. Nothing else would pull the car out. The Maxwell run was started as an endurance test, with everything sealed up. The roads to Toledo are all but impassable, and more than once the wheels were unable to touch the bottom of the ruts, the axles straddling the roads. The car left Cleveland at 6 a. m. Friday with the hood, coil box and tool box sealed by H. H. Hower, of the Cleveland Plain Dealer. It was impossible to make any time, and it was freely predicted along the way that it was impossible for any car to get to Toledo at all. The latter city was reached, however, at 2 a. m. Saturday and the car was started back to Cleveland at daylight, reaching here Sunday evening at 6:30 o'clock. The startling part about it was that the machine was absolutely "green," having been taken off the show floor.

ALL MINNEAPOLIS SPACE SOLD

Minneapolis, Minn., March 2—Elaborate plans are being made for the Armory show which the Minneapolis Automobile Show Association will put on for 1 week, March 13 to 20. The 40,000 square feet of space for exhibition purposes was disposed of rapidly, and Manager Walter Wilmot closed the last five contracts early in the week of the Chicago show. Accessory dealers from all over the country are still seeking spaces. Two features not noticed at Chicago will be emphasized in the Minneapolis exhibition and these are entertainment features, including vaudeville, soloists and orchestra and band, and rest rooms and smoking rooms for the visitors. Special attention also will be given in arranging the decorations, to care for the ventilation of the spacious building. Throughout the northwest territory agents report a lively interest in the Minneapolis show, and it is known that there will be thousands of visitors here during show week. Primrose and purple are to be the prevailing colors used in the decorative plan. Over 40,000 yards of bunting and 20 tons of staff work will be used in completing the decorations, while 10,000 electric lights will be used in the aisles and exhibits.

FIAT MAY GO TO DETROIT

Detroit, Mich, March 1—From statements made in Detroit, where he was entertained and shown about the city by President H. B. Joy, of the Packard Motor Car Co., E. R. Hollander, representing the Fiat in this country, will report favorably on the construction of an American factory in Detroit, providing no cut is made in the present protective tariff. The establishment of the American factory will not be decided on until the tariff matter has been definitely settled.

SYRACUSE'R SHOW BOOMING

Syracuse, N. Y., March 1—Wednesday, March 24, will mark the opening day of the first real motor show for Syracuse. The show will be of 4 days' duration, winding up on the following Saturday night. Applications for space are coming to officers of the Syracuse Automobile Dealers' Association; under whose direction the show is being conducted, and the prospects are that the space will be exhausted long before the opening of the doors. Efforts are being made to secure Dai Lewis, of Buffalo, to conduct the show and attend to the allotting of floor space, advertising, etc., and Mr. Lewis has expressed his willingness to assume the duties. President C. Arthur Benjamin has closed the contracts with Captain John B. Tuck for the New York state armory.

BREACH WIDENS IN BOSTON

Boston, Mass., March 1—The latest developments of the Bay State A. A.-Boston Motor Club proposed amalgamation seems to point to the negotiations toward an affiliation falling through. Everything appeared to be going along rather smoothly after the conference committees of both clubs met and discussed the matter. The report of the Boston Motor Club's committee was accepted, but when the Bay State A. A. committee made its report its members refused to approve all of it, there being a hitch as to who would be taken into the consolidation. It now looks as if the Boston Motor Club will be organized and officers elected this week.

Senatorial Aspects of the Motor Car

By J. M. Carples, A. L. A. M.

SOME of the most able exponents and defenders of the American arts and sciences are found among the ranks of our United States senators and congressmen, who take every opportunity, both in congress and when at home on the stump, to laud to the skies the American manufacturer and inventor, and the march of progress. Among those who leave no occasion unturned for this style of oratory may be mentioned Senator Bailey, of Texas; Senator Bacon, of Georgia, and Representative Simms, of Tennessee.

How much at variance with their acts the utterances of these gentlemen are can be seen from their remarks before the senate and house of congress recently on the urgent deficiency bill. The bill contained an item of $12,000 for motor cars for the president of the United States, and a smaller item for conveyances for the vice-president, secretary of state, and the speaker. The senate frowned upon the items and had them stricken from the bill. I quote from Senator Bailey's speech:

The suggestion which I made yesterday, and which seems pertinent here and pertinent everywhere, is that no man has a right to use a vehicle on a public highway that is calculated to jeopardize the safety of other people who have a right to use that highway. I think that there is not a senator here or anyone elsewhere who does not know that it is a matter of daily occurrence for horses to become frightened and many serious accidents to occur in consequence of using motor cars on public highways.

I do not complain very much where they are used in a city, because horses which are also used in our cities become accustomed to them and seldom take serious fright at them, and yet in this city, and in every other one, it is an occasional occurrence that a serious runaway is produced by some horses taking fright at motor cars.

I am not myself inclined to have the government patronize any particular line of industry, but if the argument which the senator from Wyoming has advanced here in opposition to the motion which I have made is to prevail, then the government of the United States must send all of its horses to pasture to die of neglect or old age, and must supply every need it has to come and go by the motor car. In other words, the senator from Wyoming serves notice on the American farmer that this is to become a horseless age because if the government of the United States finds it to its interest to employ the motor car instead of the horse, then every citizen of the United States must ultimately find it to his interest and to his convenience.

Remarks by Senator Warren

Senator Warren, of Wyoming, said:

With reference to the amendment, I will say that I yield to no one, not even the senator from Texas, in my love of the horse. I always drive a horse where I can. The senator alluded yesterday to some ranch possessions in which I am interested where I raise horses. I may say to him that it has become necessary in the ranch business to use motor cars for many purposes, including that of hunting lost horses, because it is a matter of speed and economy. At the present quotation of prices of motor cars given us for the next season they are relatively cheaper than horses, cheaper to maintain, and it is in the interest of the government that so fast as we may be able to use motor cars to advantage in place of horses, we should adapt them. As to the part of the remarks of the senator from Texas regarding danger, there certainly would be no more danger in the hands of the speaker and vice president than there is now from their use by men and women who now own motor cars and who are bound to continue using them.

I may say that when sheep get scattered in a storm, and we would wear out and possibly kill horses in finding them, we drive in a day a motor car 150 or 200 miles—away beyond the capacity and strength of the horse—and discover them, thus saving them, where otherwise they would become the prey of wolves, or would perish for lack of care.

Senator Bailey has evidently entirely misunderstood what I said. There is perhaps just as much necessity for horses now as heretofore, and this fact is best proved by the condition of the horse market. As against all the growing use of motor cars, horses get higher and higher in price every year. I would certainly take nothing from the horse except that part of the business that can be better and cheaper done with a motor car. I would certainly do nothing against the farmer, as I am one and always have been, and as for his product, the horse, I have always taken pride in furnishing what little money I could get to propagate, and raise the best, and ofttimes to my loss rather than profit.

Increases Price of Horses

So I must not be misunderstood by the senator from Texas as meaning that we are infringing upon the use of the horse. The business of the country is increasing every day, and even if we are not employing horses to do all kinds of transportation business, the market is good for horses. The more motor cars we have put into use in recent years, the higher the market for horses has gone.

Mr. Bailey: That is a singular course of reasoning—

Senator Warren: I may say it was the same when the general use of electricity commenced. We use many times more gas now than we did before we had electricity, because there is more use accorded to the two. It is the same with motor cars and horses. If the senator has bought horses lately, he knows that they are higher today than they were a year ago, and that they were higher a year ago than the year before.

We had horses on street cars until a few years ago. Now, it is all electricity, and yet horses have not gone out of general use, and are higher in price than they were before they were displaced as the motive power on street cars.

Senator Bailey: The senator from Texas believes that next to the dog the horse is man's best friend. The senator from Texas believes that the horse is the noblest of God's dumb creatures, and he does not want to see him supplanted with a senseless machine. As far as I am concerned, I think the people had better travel a little slower and go the old way, rather than travel so fast and not go the safe way. If the gentlemen want to use a motor car and take the risk of what it may do, for sometimes I understand it turns upside down and sometimes catches the occupant in the turn. But I am told that the accidents of these machines are sometimes unavoidable. I am told that they sometimes "skid." I do not know exactly what that may mean, but I have an idea. Then I am told that they sometimes "turn turtle" by which I understand that the top sides goes down to the bottom and the bottom comes up top.

If the senator or a citizen chooses to use them on his own ranch or on his own premises, I would be the last man to interfere with him; but I do not think he has the right to go on a public highway and endanger the lives of men, women and children by the use of a machine that frightens the use of locomotion employed for a thousand years.

The horse has an ancient and prescriptive right to the highway, and I do not think he ought to be driven from it by these machines. I know more than one man who has been compelled to sell his horses and carriages because their wives were afraid to use them on the highway where these machines are used.

I believe that at least the government ought to set the example of traveling the old way, and let us travel by things that breathe and feel rather than by machines that neither breathe nor feel and yet produce much mischief in the world.

Mr. Bacon: I agree with my friend, the senator from Texas, to a large extent in his criticisms on motor cars. I am not myself partial to them, and I think there is great truth in the fundamental proposition that motor cars or anything else ought not to be allowed upon the public highways to endanger those who are in the common use of the highways. At the same time, we cannot stand in the way of the march of events. If the senator from Texas were proposing to regulate motor cars in this city, as I think they ought to be regulated, to keep them within a proper rate of speed, I should be with him.

I am going to vote against the entire proposition, and therefore I do not think I will vote against the proposition for the use of the motor cars by the government if the vehicles are going to be allowed. The elimination of the few, or of one, possibly, which would be used by the speaker, would not affect the general question. I want to go to what I consider the material matter. I shall vote against the amendment which gives any sort of vehicle—horse vehicle or machine—and I would be glad of an opportunity to vote against giving it to any other officer of the government for his personal use.

Motor cars seem to have come to stay; I am sorry for it. I wish one had never been invented or manufactured. The senator from Texas can go no farther than that, I am sure. That is all I mean. While I would be very glad to debar the motor car, there seems to be such a general consensus of opinion in favor of it, such a general use of it, that it seems to be impossible to do so. That is the progress I mean, and the only progress to which I refer.

Senator Bailey: Well, the senator said we could not resist the march of progress. I simply want to file a protest against any suggestion that the country is making much progress when it is taking from the farmers one of the chief articles of value produced by them and concentrating that operation in the great cities. I do not believe that that is progress. I do not want to be put in the attidue of standing in the way of the march of progress.

Representative Simms: The motor car furnishes a dangerous means of travel, not only for the people who ride in it, but for pedestrians. The motor car is a general all-round nuisance. I don't want to be a "Chickapiny" about this, but I am not in favor of this appropriation. I am opposed to this congress going on record as favoring motor cars as a means of travel.

Representative Mann, of Illinois: Does the gentleman think the president ought to be required to use Tennessee mules?

Mr. Simms: Tennessee mules would be safer for the president. I do not want anything done here that will amount to us saying to the motor fanatics of the country, "We hereby encourage you." Let us vote down this thing.

Other Governments Liberal

Without commenting at all upon the foregoing, let us turn to a view of some "old world methods." Austria-Hungary has a population of about 48,000,000. It also has a large standing state debt. Yet its government has appropriated during the last 5 years about 10,000,000 kroner, and in the last year about 2,000,000 kroner to be used entirely in the use and development of the motor car in its various departments. The posoffice gathers up and

delivers its mail by motor car, and the army uses the motor trucks exclusively for baggage and transport wagons. In its hospital corps, telegraph service, fire department, and in every branch of the service where speed and economy are necessary, advantage has been taken of the motor car as a modern medium of transportation. It is provided by law that all vehicles supplied to the government shall be of domestic manufacture.

What France Is Doing

France has a population of about 40,000,000, and from time to time has appropriated sums for public service motor vehicles, the motor car playing an important part in the army maneuvers. Wherever the motor car can be utilized in public service, the opportunity has been afforded the French manufacturers to provide it. Motor cars are encouraged, and not frowned upon. The French government conducts trials in commercial motor vehicles, and the winners receive certificates which the government follows in purchasing motor vehicles. The industrial trial of almost 12 months duration has just taken place in France in the city of Paris, the main result of which is that one of the most prominent factories in the world has just received an order for 250 vehicles to be delivered within the next 18 months at a cost of over 4,900,000 francs.

Germany has given encouragement to every motor car manufacturer, who knows that wherever the government can use the motor car it will do so. Officers in the department of engineering have been assigned to the particular duty of the motor car, and from time to time their reports are received, and recommendations are made and adopted, and orders placed for motor cars of domestic manufacture. In the last 4 years something like 12,000,000 marks have been set aside for this purpose.

Contrast this with the order recently issued by General Luke E. Wright, secretary of the war department of the United States government, that in the future any officer having duties to perform at posts about Washington will no longer be allowed to use a motor car.

That the municipal government of the city of New York is a good deal more wide awake than the federal government, and appreciates the necessity of speed and economy in the conduct of its business, is evidenced by the following figures:

New York's Motor Service

The city of New York has bought, and now owns and operates, about 100 motor vehicles, valued at present at about $300,000. It conducts a model garage, and outside of the cost of chauffeur, which averages some $1,200 a year, the cost of upkeep, including tires, gasoline, lubricating oil, repairs, etc., does not average $250 per machine. And the machines are garaged right in the heart of the city, where ground rent is higher than in any other city in the world.

The arguments used by Senator Bailey, of Texas, and others, show an utter lack of comprehension and grasp of the already enormous and rapidly growing motor car industry and its function. A century ago the social ruin of England was predicted from the introduction of railroads, the argument being that it would throw out of employment all the postboys, coachmen and others engaged in the old method of transportation.

The combined municipalities of the various states of the United States have probably spent $10,000,000 for motor cars, not for the encouragement and advancement of the motor industry, but for the efficiency of public service, realizing how much time can be saved, and how much better work can be done by mechanical traction.

Uncle Sam Is Chilly

The United States government has never openly recognized the motor industry or encouraged it in any way directly. Modern civilization differs from the civilization of former periods chiefly by reason of swifter travel and communication. These have changed history and made the character alike of nations and individuals radically different from what they would otherwise have been.

Views Are Changing

Generally speaking a change has overtaken the entire country as to the opinion of the public on motoring and the motor car, something for which the pioneer motor car makers, nearly all of whom are members of the Association of Licensed Automobile Manufacturers, have labored long, strenuously and efficiently. Aside from the matter of the above mentioned facts, many of which are obvious, it does not seem to be realized by some members of congress that the motor car is the basis of an enormous industry employing hundreds of thousands of hands, millions of dollars, and that last year, as shown by a recent public statement, $467,000,000 was spent in the United States as a result of the existence of the motor industry, which means that every farmer, hotelkeeper or industrial worker in this country received his portion.

Plans of the Harrisburg Run

Harrisburg, Pa., March 2—At a meeting of the contest committee of the Motor Club of Harrisburg, reports were received from sub-committees and final action taken regarding many of the arrangements for its reliability run. The contest will be held May 3-6 inclusive. It is proposed to cover about 175 miles each day, making 700 miles in all. The rules adopted are practically the same as those which proved so satisfactory in last year's contest held by the club. The schedule of technical penalties will be that drawn up by David Beecroft, of Chicago, who will officiate in his usual position of chairman of the technical committee. The route of the contest will lead through many historic places, and what is more important from a trade standpoint, will go through a rich and thickly-settled country. The first day's route will lead from Harrisburg to Washington, via Gettysburg, Hagerstown, Harper's Ferry and Frederick. On the second day contestants will return to Harrisburg via Baltimore, Westminster, York and Lancaster. On the third day the route leads from Harrisburg to Scranton, following the Susquehanna river most of the way and passing through a number of important towns, including Wilkes-Barre. On the fourth and last day of the contest the return will be made to Harrisburg via Delaware water gap, Easton, Allentown and Reading. A thorough discussion took place regarding the attitude of the club toward the chairman of the contest committee of the A. A. A. A motion to hold a contest without any reference to Mr. Bower's committee was laid on the table, as was a motion to apply for a sanction to the Automobile Club of America.

Norristown Discusses Dates

Norristown, Pa., Feb. 28—While last Thursday night's smoker of the Norristown Automobile Club failed to result, as hoped for, in the unanimous choice of a route for next May's 2-day endurance run, opinion was sufficiently crystallized to reduce the possibilities to two. The two-score Philadelphians present seemed disposed to let the locals make their own choice, but the hosts insisted on the Quakers helping them to arrive at a decision. The result was two nearly evenly-balanced parties, one advocating a straightaway run with Hagerstown, Md., as the outer mark, the other favoring a Norristown-Lancaster-Wilmington-Norristown route the first day and a Doylestown-Easton-Bethlehem-Allentown-Philadelphia-Norristown jaunt the second. The Philadelphians generally favored the latter—especially those of them who were connected with the trade—for the reason that it would not only keep the contestants within the territory controlled by them, but enable them to spend the night near home. The Hagerstown advocates urged their route on the score of its scenic beauty, the trip across the mountains and the historic points to be touched. The final decision will be made by the contest committee within the next fortnight. The matter of a thoroughly competent technical committee was taken up and it was decided to secure the best available talent in this line. The contest committee is made up of Edward Wentz, chairman; Frank Templeton, P. V. Hoy, George Altemus and William Haginbotham. The exact date of the run has not been decided upon, but application for open dates will soon be made. At present it looks as if May will be a busy month.

Legal Lights and Side Lights

FEATURES OF SWAN BILL

DIFFERING from many other bills, the measure prepared by Coloned Sherlock Swann, president of the board of police commissioners of Baltimore and a member of the state motor car commission, for the consideration of the Maryland legislature, has several novel points, one of which is that the commissioner and deputy commissioner of motor vehicles must be practical motorists who have driven a car at least 2,000 miles. It also prohibits the operation of a car by an intoxicated person and provides for the granting of permits for road races or other contests. Horespower is determined by the A. L. A. M. formula and the license fees are to be based upon the horsepower. One good point is the provision that no toll road company shall collect toll from a motor vehicle in excess of that charged for each vehicle drawn by two horses. Rules of the road are definitely outlined, while throwing tacks, nails, glass, etc., on the highways is forbidden. Another new idea is the clause forbidding a driver leaving his car on the highway with the motor running or without locking the lever or throttle or removing the switch plug. The fines go to the maintenance of the highways.

Colonel Swann claims the bill comprises the best features of the laws of twenty other states of the Union as well as some ideas of his own, which the colonel himself considers to be extremely fair to both motorists of the state and the public as well. It might be said that in preparing the bill Colonel Swann has shown no prejudice. He is an enthusiastic motorist himself, and should the bill become a law he would be among the motorists who would have to pay the highest tax, as he owns one of the largest cars in the state. Colonel Swann has also visited many of the states throughout the country and in this way has been able to observe the good and bad features of the laws prevailing elsewhere. He also took care to explain to his critics and others that so far as law is concerned he is merely a layman and there are likely to be several passages in the bill not exactly correct legally. Should the commission and the general assembly decide to make the bill a law, such passages, where they exist, will be put in proper legal form by Attorney General Straus. Important sections of the bill are as follows:

Section 131—There shall be appointed by the governor, by and with the consent of the senate, two sober and discreet persons who shall have been registered voters in the state of Maryland for 3 consecutive years next preceding the date of their appointment, who shall be known as the commissioner of motor vehicles and deputy commissioner of motor vehicles, who shall devote their time to the work. Each of said commissioners shall be subject to removal by the governor for official misconduct or incompetency, in the manner provided for by law in the cases of other civil officers. Each of said commissioners shall be appointed for 2 years and the term of their office shall commence on the first Monday of May next following their appointment; and they shall hold office until their successors are appointed and qualified. The commissioner of motor vehicles shall receive a salary of $3,000 per annum, payable monthly, and the deputy commissioner a salary of $2,400 per annum, payable monthly. They shall be required to give bond in the sum of $20,000 each, or such additional sum as the governor may deem proper, for the faithful performance of their duties. The commissioner shall appoint such assistants and at such salaries as he may deem necessary, subject to the approval of the governor. He shall maintain an office in the city of Baltimore, open daily excepting Sundays and holidays, during the hours of the municipal offices, and shall file with the governor on the last day of April in each and every year an account of the receipts and expenditures of the office, as provided for in this act. The salaries of the commissioner and the deputy commissioner and the salaries of the clerks, together with all office and other expenses, including the cost of such bonds, shall be paid out of the fees received. He shall transmit on the first day of each and every month such moneys as may not be needed to carry out the provisions of this act to the state roads commission, and shall receive a receipt therefor. The deputy commissioner of motor vehicles shall be the chief clerk and shall act and have all the powers as commissioner of motor vehicles during the absence of said commissioner. Each shall be conversant with the construction of motor vehicles and shall be required to make oath that they have personally operated motor vehicles, other than motor cycles, at least 2,000 miles prior to their appointment. At the time of the qualification of the commissioner, as provided for in this section, he shall obtain from the secretary of state such records of licenses heretofore issued, both for motor vehicles and chauffeurs, together with the number and make of the car and horsepower of such car, and all other information that may be beneficial to such commissioner in the performance of the duties hereby provided for, and said commissioner shall pay to the secretary of state therefor such an amount as will compensate him for the expenses incurred in preparing and furnishing such information, as he may so certify to.

Section 132—Whenever the term "motor vehicle" is used in this act, except when otherwise expressly provided, it shall include all vehicles, including motor cycles, propelled by any power other than muscular, except such vehicles as run only upon rails or tracks.

Section 134—Every manufacturer of or dealer in motor vehicles may, instead of registering each motor vehicle owned or controlled by him, make application upon a blank provided by the commissioner of motor vehicles for a general distinguishing number or mark, and said commissioner may, if satisfied of the facts stated in said application, grant said application, and issue to the applicant a certificate of registration containing the name, place of residence and address of the applicant, and the general distinguishing number or mark assigned to him, which shall be made in such form as said commissioner may determine; and all motor vehicles owned or controlled by such manufacturer or dealer shall, until loaned, sold or let for hire be regarded as registered under such distinguishing number or mark. The fee for every such certificate of registration for motor vehicles, other than motor cycles, shall be $100, and for motor cycles $10; all of which shall expire on the 31st day of December in each and every year.

Section 138—No person shall operate a motor vehicle upon the public highways of this state until he, or she, shall have first obtained a license for that purpose, but nothing herein contained shall prevent the operating of a motor vehicle by an unlicensed person, other than a person whose application has been refused or whose license has been suspended or revoked if accompanied by a licensed operator, which licensed operator shall also be personally liable for any violation of the provisions of sections 143, 145, 146 and 158 of this act. Licenses for the operation of motor vehicles shall be issued by the commissioner of motor vehicles, but no license shall be issued to any person under the age of 16 years, excepting for operators of motor cycles, who shall not be under the age of 14 years. Applications for licenses shall be made upon blanks furnished by the said commissioner, and said application blanks and said licenses shall be in such form and contain such provisions, not inconsistent with this act, as said commissioner may determine. The commissioner may require in addition, should he deem necessary, an actual demonstration of the qualifications of the person applying for such license and may refuse to issue the same if in his judgment the safety of the public would be jeopardized thereby, but said applicant shall have the right to appeal if license is refused, as provided in section 141 of this act. A number shall be assigned to each license, and a proper record of all applications for licenses and of all licenses issued shall be kept by said commissioner at his office and shall be open to public inspection. Each license shall state the name, age, place of residence, and postoffice address of the licensee and the number assigned to him or her. Said license certificate at all times shall be carried by the licensee when he or she is operating a motor vehicle upon the highways of this state, and shall be subject to examination upon demand by the proper person. No license badge shall be worn.

Section 139—The following fee shall be paid to the commissioner of motor vehicles for the certificates and licenses issued by him in accordance with the provisions of this act, except those specially provided for in section 134 of this act: Three dollars per annum for each certificate of registration of a motor vehicle used only for the transportation of merchandise; and for other motor vehicles, other than motor cycles, the following charges per annum shall be made: $6 for one with a rating of 10 horsepower or less; $12 with one with a rating of more than 10 horsepower and not more than 20 horsepower; $18 for one with a rating of more than 30 horsepower and not more than 30-horsepower; and $24 for one with a rating of more than 30 horsepower; $3 per annum for each certificate of registration of a motor cycle. The above charges are for the entire 12 months of the year and if the license is taken out in any month after January, one-twelfth is to be deducted from each of the charges above stated for each expired month, but not fractions of a month.

Section 140—The following fee shall be paid the commissioner of motor vehicles for licenses for operators: $2 to operate motor vehicles other than motor cycles and $1 to operate motor cycles; provided, however, that anyone who has, before the passage of this act, paid for and obtained a license to operate motor vehicles in this state, can by making the application required in section 138 of this act, and by surrendering such certificate of license to the commissioner of motor vehicles, receive therefor without cost an operator's license under this act.

Section 142—Any non-resident of this state who shall have complied with the laws of the state or territory of the United States in which he resides, requiring the registration of operators of motor vehicles, or of motor cycles, or of both, and the display of identification numbers on such vehicles, and who shall cause the

LEGISLATIVE MATTERS

Maryland motorists hold a meeting and protest against the taxation proposed in the Swann bill; features of the measure.

Pennsylvania is aroused over bill No. 82 which permits commissioners to set as low a speed rate as they desire, while half the fine imposed is to be divided with the informer.

The Chicago Automobile Trade Association proposes to carry the Chicago wheel tax case to the United States supreme court and has appealed to the motorists of the state to contribute to the war chest.

A bill introduced into the Wisconsin legislature by Senator Page wipes out the speed regulations in the Badger state.

Senator Sullivan asks the New York legislature to pass a bill which will prevent chauffeurs being arrested for a violation of the Sunday laws.

Joy riding is attacked by a bill before the New York legislature.

Many bills are up for the consideration of the Pennsylvania legislature, one of which aims to compel all vehicles to carry lights at night.

identification numbers of such state or territory, in accordance with the laws thereof, and none other, together with the initial letter or letters of such state or territory, to be displayed on his motor vehicle, as provided in sections 135, 136 and 151 and 152, while used or operated upon the public highways of this state, may use such highways not exceeding two periods of 7 consecutive days in each year, without complying with the provisions of the foregoing sections of this act; provided, however, that, if any non-resident be convicted of violating any provisions of sections 143, 145, 146 and 158 of this act, he shall thereafter be subject to and required to comply with all the provisions of this act relating to the registration of motor vehicles and the licensing of operators thereof.

Section 143—No person shall operate a motor vehicle or motor cycle on any public highway of this state recklessly, or at a rate of speed greater than is reasonable and proper, having regard to the width, traffic and use of the highway, or so as to endanger the property or life or limb of any person. If the rate of speed of a motor vehicle operated on the public highways of this state exceed 12 miles per hour in the thickly settled or business sections of cities, towns or villages; or 18 miles an hour in the outlying parts of cities, towns or villages not thickly settled, or 25 miles an hour in the open country outside of the limits of cities, towns or villages, such rate of speed shall be prima facie evidence that the person operating such vehicle is operating the same at a rate of speed greater than is reasonable and proper, and in violation of the provisions of this section.

Section 146—No person shall operate a motor vehicle on the public highways of this state when intoxicated, or in a race, or on a bet or wager, except as hereinafter provided.

Section 147—The board of county commissioners, or other proper local authorities, having charge of the roads and highways—in Baltimore city the board of police commissioners—may, in their discretion, set aside for a given time a specified public highway for speed contests or contests between motor vehicles, to be conducted under such proper restrictions as they may determine, for the safety and convenience of the public.

Section 148—The horsepower of all motor vehicles, propelled by gas engines, shall be computed upon the following formula, and the annual license fee paid in accordance therewith: Square the diameter of the cylinder, multiply by the number of the cylinders and divide by two and one-half. For all motor vehicles propelled by a steam engine the rating shall be based on the system of rating adopted by the United States government. Should any other motive power be used the commissioner of motor vehicles is hereby empowered to adopt such formula to govern their rating as he may deem proper.

Section 149—It shall be unlawful for any toll road company to charge or collect toll from a motor vehicle in excess of that charged for each vehicle drawn by two horses.

Section 150—No city, town, village or county shall have the power to make any ordinance, by-law or resolution respecting the speed of motor vehicles, and no ordinance, by-law or resolution heretofore or hereafter made by any city, town, village or county in respect to motor vehicles shall have any force or effect; provided, however, that powers given to any city, town or village to regulate shows, processions, assemblages or parades in streets and public places, and to regulate the use of public parks, and all ordinances, by-laws and regulations which may have been or which may be enacted in pursuance of said powers shall remain in full force and effect.

Section 154—In all complaints for the violation of any provision of this act, the justice of the peace before whom the same shall be tried shall have jurisdiction and power to render judgment therein, and issue process of execution thereon, where such fine and penalty imposed shall not exceed $100, or imprisonment for 30 days, or both; but the defendant shall have the right to appeal as in other cases. The justice of the peace or court before whom a final conviction shall be had under the provision of sections 143, 145, 146 and 158 of this act shall endorse upon the license of the person convicted or attach thereto the date and particulars of such conviction.

Section 155—All vehicles when being driven upon the highways of this state upon meeting others shall turn to the right of the center of the highway so as to pass without interference; and any vehicle so overtaking another going in the same direction shall pass to the left of the vehicle so overtaken. Said vehicle so overtaken shall promptly, upon signal, turn to the right in order to allow free passage on the left. At the intersection of public highways all vehicles shall keep to the right of the center of such highways when turning to the right, and pass to the right of the center of such intersection when turning to the left.

Section 157—No person shall allow any motor vehicle operated by him to stand or remain unattended on any highway of this state without having stopped the motor and locked the lever or throttle, or removed the switch by which the vehicle may be set in motion.

Section 158—No chauffeur or other person shall drive or operate any motor vehicle upon any street or highway in the absence of the owner of such motor vehicle without his consent. No chauffeur or other person having the care of a motor vehicle for the owner shall receive or take, directly or indirectly, any bonus, discount or other consideration on supplies or parts furnished or purchased for such motor vehicle, or on work or labor done thereon by others; and no person furnishing such supplies or parts, work or labor shall give or offer any such chauffeur or other person having the care of a motor vehicle for the owner, directly or indirectly, any bonus, discount or other consideration thereon. Chauffeurs, while operating motor vehicles on the public highways of this state, shall be subject to all the provisions and penalties prescribed in this act.

What motorists throughout Maryland term the "special motor tax feature" of the Swann motor vehicle bill was vigorously denounced by several hundred owners who attended the convention arranged for by the Automobile Club of Maryland, last Saturday. The slogan, "$3 for registration and not a cent for special tax," was adopted at the convention. Not only did the motorists come to the conclusion that a special tax on their cars was unfair and unconstitutional, but they decided to form a general state club along the lines of the old League of American Wheelmen to fight to a finish any attempt to force them to meet what they consider extortion. This club will consist of local councils in all of the important towns and the counties of Maryland and the members of the various councils will become a part of the advisory council of the Automobile Club of Maryland, so that the motorists from all sections will be in a position to coöperate on important legislation.

Dr. H. M. Rowe, president of the Automobile Club of Maryland, said: "We can muster about 7,500 voters, and that means something. When we show the members of the legislature that they are affecting their parties by passing burdensome legislation against the motorists, we can, no doubt, get a hearing." Secretary Frank W. Darling pointed out that the bill prepared by Colonel Swann was only a tentative one and unfair in many respects, so that the motorists should help to formulate a law that would be acceptable. The president and secretary of the club then pointed out that up to the present time the good roads in the state were only imaginary and on paper and that motorists should not be expected to pay a big special tax for roads that do not exist. As a matter of fact, routes have been practically selected in all the counties of the state for a general highway improvement system but this work is not scheduled to be started until the first of May.

W. B. Littleton, of the Hagerstown Automobile Club, said that the proposed tax was unfair in Washington county, inasmuch as all roads there were toll roads, and that the county is so close to neighboring states that the licenses that have to be paid in those states make the cost of motoring almost prohibitive and any additional tax would be the last straw. He presented a petition against the law signed by numerous Washington county citizens, many of whom were not even motorists. A strong petition against the tax clause in the law, signed by more than 200 residents of Union Bridge and vicinity, was read. There also were speakers from southern Maryland and the eastern shore, who roundly scored the special tax feature. Dr. William B. Gambrill, of Ellicott City, Howard county, declared that the steel-shod wheels of horse-drawn vehicles cut the roads far more than any rubber tire would, and said that the undue prejudice against the motor car was responsible for the present agitation.

RHODE ISLAND'S LATEST

The Motor League of Rhode Island is working energetically in the interests of the motorists of that state, and has introduced several measures before the legislature that will secure better treatment of motor car owners provided the bills are adopted. One of the most important relates to a reduction of the fees now charged by the state for operating motor cars. The measure is as follows:

The following fees shall be paid to the state board of public roads for the certificates and licenses issued by it in accordance with the provisions of this act: $2 for each certificate of registration for a motor vehicle other than a motor cycle or motor truck of 20 horsepower or less; $3 for each motor vehicle over 20 horsepower and not more than 30 horsepower; $4 for each motor vehicle of more than 30 horsepower and not more than 40 horsepower; $5 for each motor vehicle of more than 40 horsepower; 50 cents for each certificate of registration of a motor cycle or motor truck or duplicate thereof; $20 for each dealer's or manufacturer's certificate; $1 for each original license to operate a motor vehicle other than a motor cycle; 50 cents for each original license to operate a motor cycle.

In the motor act now in force the registration fees are as follows: $5 on motor vehicle other than motor cycle or motor truck of 20 horsepower or less; $10 for motor vehicles over 20 and not more than 30 horsepower; $15 for cars of more than 30 and not over 40 horsepower; $25 for cars over 40 horsepower; $50 for a dealers' or manufacturers' certificate. There is another one relative to registration, in which it seeks to provide that the owner shall be required to register only the car that is in use. An amendment also has been offered, providing that when a transfer of a car is made from one person to another, and the latter is authorized to operate the car, there shall be no charge for making the change. The light bill, providing for all vehicles using the roads at night to carry some sort of a light also has been introduced. The other regulation seeks to have a person arrested for violation of the law placed on file if it is shown that the speed was not unreason-

able at the time and place, and also to allow a person arrested a chance to be allowed to go upon his personal recognizance.

PENNSYLVANIA AROUSED

The Pennsylvania Motor Federation, through Secretary Paul C. Wolff, has been aroused to action by the introduction into the legislature of senate bill No. 82, fathered by Mr. Blewett, and house bill No. 108, introduced by Mr. McAndrews, both amending the present road law, the act of April 22, 1905. Both these bills contain the same clause, the tenor of which has startled the Pennsylvania because of the alleged oppressive measures advocated. As defined by Secretary Wolff, the clause permits the commissioners of any county to fix as low a speed limit as they desire for motor vehicles, and to punish violators by a fine of $100. Any private individual may make the information and will receive one-half. The objectionable clause is as follows:

Provided also for the purpose of preventing unreasonable wear and destruction of public roads improved and maintained by the several counties of the commonwealth of Pennsylvania the commissioners of any county are empowered to adopt and prescribe reasonable rules regulating and restricting the use of said roads within such county by any means of locomotion and to prescribe pecuniary penalties for the enforcement thereof. Any resident of the county within which the violation of any rule so adopted shall occur may institute and prosecute to judgment and execution the action of assumpsit in any court having jurisdiction in such actions and the amount involved for the recovery of any penalty for the violation of any rule prescribed by the commissioners, of which penalty the plaintiff shall be entitled to one-half and the county shall be entitled to the other half, payable to the county treasurer, who shall add the same to the fund for the improvement of the said county roads. Any person found guilty of violating any rule so adopted, upon summary hearing by any justice of the peace or other magistrate having the jurisdiction and powers of a justice of the peace in such matters of the proper county, shall be adjudged by such magistrate to pay a fine of not less than $5 or more than $100, payable to the county treasurer, who shall add the same to the fund for the improvement of said county roads.

WHEEL TAX CASE NOT ENDED

Believing it is possible to get a favorable decision in the United States supreme court the Chicago Automobile Trade Association has decided to appeal from the Illinois supreme court, which sustained the Chicago wheel tax ordinance. The dealers held a meeting last Friday night at which time the case was thoroughly discussed and the chances of a victory in the higher courts gone into. The association became convinced the battle has not as yet been lost and a decision was reached to raise a fund and continue the fight. The dissenting opinion of Chief Justice Cartwright of the Illinois supreme court, who coincided in the contentions of the motorists in the case brought before the state tribunal, encouraged the dealers, who think the fighting has just started. A subscription list was started at the meeting and $300 raised which will be used to start the fray, while a committee, consisting of N. H. Van Sicklen, Sr., Thomas J. Hay and Henry Paulman has started work on carrying the case up. These three men have decided that the best way to raise the war fund is to appeal to the motorists of the state for financial aid. With this idea in mind the committee has sent out a letter to the 18,000 owners in the state, pointing out that it is a common cause, that if the ordinance is sustained it will deal motoring a hard blow and encourage other cities and towns to impose a similar tax. It is expected that this letter will put something like $15,000 into the war chest and give the association sufficient funds to go to the federal courts. Henry Paulman, 1430 Michigan avenue, Chicago, is treasurer of the fund that is to be raised.

PROTECTING CHAUFFEURS

If an amendment to the code of criminal procedure, as introduced in the New York state senate by Senator C. D. Sullivan, of New York city, becomes law, chauffeurs violating Sunday laws in New York city will not be subject to a rude arrest after September 1. He will only be served with a summons to appear. The new section which Senator Sullivan would add to the code reads as follows:

A person charged with a violation in the city of New York of an ordinance of said city, a provision of the motor vehicle law or any statute relating to Sabbath-breaking, which is punishable as a crime, upon an information of complaint made to a magistrate or magistrate's court of said city, shall not be arrested nor shall a warrant issue for his arrest in the first instance, but a summons shall issue from said court directing the accused person to appear and answer to the charge set forth in the summons at a day and hour therein named. A warrant shall issue, as a matter of course, at the time of the return hour of the summons. If the accused person appear he shall be held in custody, by virtue of the warrant, until released on bail or until the accusation or proceeding against him is disposed of. If he fails to appear he shall be arrested under said warrant forthwith and with the same effect, in respect to subsequent proceedings, as if a warrant had issued and he had been arrested thereunder in the first instance.

This bill has been read twice and ordered printed, and when printed to be committed to the committee on codes.

AIMED AT JOY RIDING

Bill No. 515 introduced into the New York legislature February 8, 1909, aims to amend the penal law in relation to the unauthorized use of vehicles. It is as follows:

Section 1—Chapter ...., of the laws of 1909, entitled "An act providing for the punishment of crime, constituting chapter 40 of the consolidated laws," is hereby amended by adding thereto, after section 1293 thereof, a new section, to be section 1293-a thereof, to read as follows:

1293-a—Unauthorized use of vehicles—Any chauffeur or other person who shall take, or cause or permit to be taken, from a garage, stable or other building or place a motor car, motor vehicle or any other kind of vehicle, and operate or cause the same to be operated or driven for his own profit, use or purpose, without the consent of the true owner, steals the same and is guilty of larceny and shall be punished accordingly.

PROVES A COSTLY JOKE

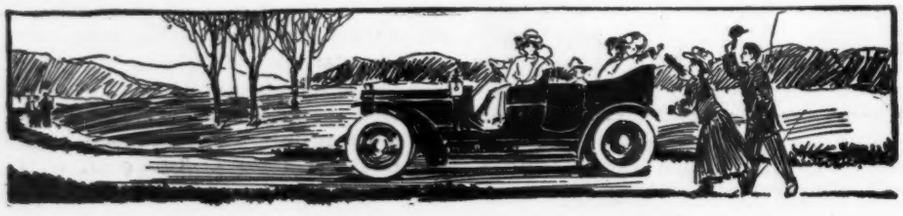
A more disgusted gathering of men than the forty Boston dealers that appeared in the state house at Boston last Friday to advocate a motor car measure, it would be hard to find anywhere. They went there to speak in favor of a petition granting the Boston street commissioners more power, so that permits might be granted the dealers to allow them to let their cars stand outside their salesrooms a reasonable length of time. Previous to presenting the petition a conference was held with the street commissioners by Attorney Francis Hurtubis on behalf of the dealers, and he was told by Commissioner Charles that the commission had not the power to grant the privilege, so that the petition was the result. Mr. Hurtubis had been speaking but a few minutes when one of the members of the legislature asked if the street commissioners did not already have power to grant the petition without further legislation. Mr. Hurtubis appealed to Mr. Charles, who was present, and he arose and with a smile stated that the commission had the necessary power. So there was nothing to do but withdraw the petition. After the hearing, when Mr. Hurtubis asked Mr. Charles why he misled him, Mr. Charles said that if he did so it was only a joke. As it cost all the dealers a whole forenoon of business, and the expense of presenting the petition, which cost about $150, the Boston dealers are still trying to figure out just where the joke came in.

NO REGULATING FEATURES

The Wisconsin legislature is considering a new law, one which it is believed has no prototype in this country, at least. It was introduced by Senator E. E. Page, of Milwaukee, and wipes out the present Wisconsin statute regarding the use of motor cars, yet is devoid of regulating features. It takes away the present speed limit provision and seeks to withdraw state control from highways that are owned by corporations, such as speedways, race tracks and pleasure drives.

The speed limit provision says: "No person shall operate a motor car, motor cycle or other similar vehicle recklessly at a rate of speed greater than is reasonable and proper, having regard to the width, traffic and use of the highway so as to endanger property or the life or limb of any person."

Regulation is provided as follows: "The provisions of this act shall be uniform in operation throughout the state, and no city, village, county, town, park board or other local authorities shall have power to enact, pass, enforce or maintain any ordinance, resolution, rule or regulation,



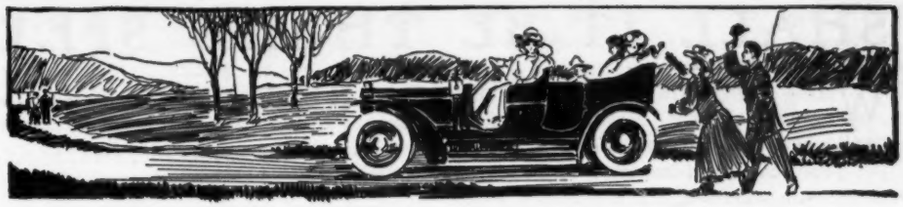
requiring local registration or other requirement in any manner excluding or prohibiting any motor car or other similar motor vehicle, whose owner has complied with the provisions of this act, from the free and unobstructed use of all public highways, driveways and parkways within the state. . . .''

In Wisconsin a bill has been introduced into the legislature making it a misdemeanor, punishable by a fine of not more than $100 or 30 days in jail, for any person to drive a motor car unless the owner is riding in the machine, without the consent of the owner. This is to prevent joy riding.

BUSY DAYS AT HARRISBURG

This is the season of motoring legislation, and bills to keep the motorist ''within bounds'' are as plentiful at Harrisburg, Pa., as roses in June. The legislature, now in session, has had several measures presented for its consideration, the most carefully-thought-out one being that introduced by Representative Harrison Townsend, of Philadelphia, in the interest of the Pennsylvania Motor Federation. The principal features of this bill are the recognition of the license tags of other states and the raising of the speed limit in the open country to 25 miles an hour. That section increasing the annual license fee from $3 to $5, intended as a reciprocity feature, is naturally not so popular with the Keystone state motorists; but it is recognized that some amends must be made for any deficiency resulting from the admission of motorists from adjoining states free of charge, and, besides, the additional income would help swell the good roads fund.

D. Webster Grim, of Bucks county, has been accused of ''selling out'' for introducing a bill which some of his bucolic constituents thought ''not severe enough'' on the motorists. The Grim measure's salient features are: Certification by two reputable persons of the character of all applicants for licenses; a $5 license fee for residents, $2 for non-residents; non-residents exempt from taxation for a period of 6 consecutive days; provision for the legitimate loss of a license tag; presence of license tag prima facie evidence that licensee is operating the car; operating owner's car or removing tags without consent a misdemeanor subject to fine or imprisonment or both; sounding of horns outside of corporate limits only necessary when proper signs are erected; speed limit 15 miles in borough limits, 25 miles in open country; third conviction for any infraction of these laws means forfeiture of license; revenues from licenses to go to highway department for road improvement, fines and penalties to the city, township or borough where levied. Motorists generally would be satisfied to see the Grim bill go through, but some of his constituents are so incensed that they have prevailed upon Representative Clarence J. Buckman, of the same county, to prepare



a bill more in accordance with their notions of the proper measure of severity to be dealt out to owners of cars.

G. Douglass Bartlett, counsel of the Quaker City Motor Club, is drafting a bill making it obligatory for all vehicles using the state roads after dark to carry lights. When this is introduced ''the country'' will go for it tooth-and-nail—as it always has done when any legislation deemed ''oppressive'' to the farming element is introduced.

In Philadelphia the legislative mill is also giving evidences of getting busy. Councilman Frank Hardart, Jr., a member of the Quaker City Motor Club, has introduced an ordinance repealing those portions of the present law requiring the payment of a city license fee and the obtaining of licenses by non-resident drivers. Double taxation, especially in this cradle of liberty, is obnoxious, and is admitted to be unjust even by those who delight in worrying motorists.

AFTER A JERSEY JUSTICE

Philadelphia motorists are after Justice of the Peace Mansfred Naar, of Trenton, N. J., on ground of extortion, oppression, abuse of his office and other high crimes and misdeameanors in connection with the prosecution of motorists for alleged violations of the speed laws. A petition asking for his impeachment was presented in the house of assembly at Trenton February 23 by Assemblyman Burpo. Besides specifying fifty or more cases in which he had secured sums ranging from $4.75 to $28.75, it was charged that his actions against motorists were invariably illegal in that no summonses were issued or other necessary proceedings taken.

NEW JERSEY RELENTING

New Jersey is awakening on the motor proposition and several amendments to the motor vehicle measure are before the legislature, one of which has to do with joy riding. One of the chief causes of complaint made by non-resident motorists is the arbitrary manner in which rural constables arrest them for alleged violations of the speed limit and minor infractions of the law, such as not having their numbers on properly, their lights lit at the right time or in the prescribed manner, and haling them before some justice to be summarily fined and abused. All this the new amendments do away with, by taking from these peace officers the right to arrest without warrant. In its place it is provided that any officer witnessing such an infraction of the law shall report the offense and the number of the vehicle to the superintendent of motor vehicles in the state house at Trenton, whereupon the superintendent shall make an investigation and, if he considers that there is good cause for such action, he shall cause the offenders to be summoned before a court of competent jurisdiction and sued for the amount of the penalty. These features of the new measure have the backing of Governor Fort, and were recommended by him in his annual message to the legislature at the opening of the present session. One of the amendments which it is expected will bring to the state house all the opposition the rural districts are capable of raises the speed limit in the open country from 20 to 30 miles. Already preparations for the fight are being made by the worthy agriculturist, and when the hearing is given on the bills by the committees now having them in charge there is every indication that he will be present in force. No section of the present New Jersey law has been subjected to more adverse criticism than that which compels non-resident touring motorists who visit the state, no matter how short their stay, to take out the same license and pay the same fee as the resident does. This hardship, as the non-residents call it, is in a great measure mitigated should another amendment pass which provides that a non-resident may run his machine in the state not more than 30 days in the aggregate in any 1 year upon the payment of a fee of $1.

MOTORIST WINS HIS POINT

W. West Randall, an old-time Philadelphia cycling light, scored handily against a Delaware county, Pennsylvania, justice of the peace last week. In September last Randall was arrested and haled before Justice McLean, of Essington, for exceeding the motor speed limit. The evidence failed to substantiate the arresting officer's charge, and Randall was ''publicly exonerated,'' the justice, however, imposing costs of $2.75. Randall refused to pay, and appealed. Judges Johnson and Broomall, who sat on the case, not only absolved Randall from payment of the costs, but handed the justice a few pointers on how to conduct his office. They held that the prosecution had failed to show that Randall was operating the car or that he was even in Essington on the day specified in the complaint, and they intimated that there was a strong element of doubt as to the legal right of an officer to time a motorist for any distance less than a mile, as specified in the act of the legislature. This point is being debated very generally.

SHALL IT BE THREE SPEEDS OR FOUR?

By Herbert L. Towle

WHAT grade will it climb in high gear?'' is the question far more likely than any other to be the first put by the prospective purchaser of any sort of motor car; and from the salesman's point of view a great deal is likely to depend on the answer. The car which is shown to be able to climb a 10 per cent grade in high, with all seats filled, stands about 100 per cent better chance of being sold than another car of the same price, whose candid salesman acknowledges that it will surmount only a 5 or 6 per cent grade under the same conditions. Yet it is entirely possible that the second may be the better car.

Engine power is only one of several things that make a car a good hill-climber. Some of the other factors prominently involved are weight, transmission efficiency, and gear ratios. The car which climbs the faster may be a lighter car, or it may waste less power in friction. Either of these is excellent, and is far preferable to high power offset by clumsy build and wasteful transmission. On the other hand, the weakest car will climb the steepest grade on which its wheels can get traction, provided it be geared low enough. It is one of the commonest tricks of the motor car salesman to gear his demonstrating car lower than his standard models. He knows that the customer, especially if a novice, does not care so much for extreme speed as he does for the ability to drive anywhere without changing gears; and the fact that on level roads the penalty is paid in reduced car speed and a racing engine, is too fine for the average novice to grasp. He can see the grade far more plainly than the speed.

Test of Hill-Climbing

The true test of hill-climbing capacity is not simply the grade, but the grade and speed combined. Stated in engineering terms, the proper basis of comparison is the product of the grade and the speed. The car which climbs a certain grade at 30 miles an hour in high gear is twice as efficient as the one which does it at 15 miles an hour. The difference may be in the engine, or it may be in the weight and transmission efficiency, or it may be in a combination of both; the result is the same.

To the engineer, the average driver's demand that he be able to negotiate any ordinary grade in high gear, savors of the grotesque. The engineer's point of view, according to which the engine should be run, so far as possible, under full load at moderate speed to produce a given result, rather than at high speed with reduced throttle, is entirely logical as regards the life and wearing qualities of the engine. Nevertheless, when nine drivers out of ten prefer to manipulate the throttle rather than the gears, it is evident that they have a psychological justification which may outweigh the engineer's argument.

Suppose we put the case thus: Do you, Mr. Motorist, drive your car for the mere purpose of making it last as long as possible, or for the purpose of transporting so many hundreds of pounds of passengers 20 miles, from Smithville to Jonesburg, with the least possible expenditure of gasoline and oil, or is your purpose to give yourself and your friends as much pleasure as can be compressed into an hour's time?

Clamor for Three Speeds

Manifestly, so far as pleasure vehicles are concerned—and we are not here considering any other—the primary essential is pleasure, and whatever in the way of convenience, flexibility and ease of manipulation will contribute thereto. As an engineer you may reason with the motorist, and may demonstrate by all the rules of mechanics the superiority of four speeds; but if on the road your friend finds that with four speeds he is kept busy shifting gears, whereas with three speeds he can forget about his gears and enjoy the scenery, he will cast engineering principles to the winds and clamor for the three-speed car. The normal man does not want to spend all his time estimating grades and listening for sounds of distress in the engine. He wants now and then to enjoy the view and to be able to admire forest-clad hills as he did before he owned a car, instead of automatically linking them in his mind with grade percentages, gear ratios, and jockeying of spark and throttle.

On the other hand, no one who has once ridden in a three-speed car will thereafter be content with two speeds; simply because the maddening crawl in low up a hill just a shade too steep for high is the most offensive possible reminder of the mechanism which the driver would so willingly be permitted to forget. Moreover, the sensitive driver of a two-speed car cannot help being aware that on level roads he is racing his engine unduly to its detriment, and the sporting driver chafes under his inability to achieve the average speed, which three or four-gear ratios would permit.

In a word, the demand is for such a compromise as will give the best average speed with the least changing of gears. Where is this compromise to be found?

If a car were intended, like a locomotive, for service over a very limited range of grades, and for loads up to a clearly defined maximum, the answer would be fairly easy; it would then be necessary only to provide such a gear as would take the maximum grade easily with maximum load, and either make this the highest gear—in case the maximum grade did not exceed, say, 4 per cent—or provide one higher gear which would take, say, three-fourths of all the grades to be encountered. This latter gear would then be direct, and the next lower gear would handle the remaining grades, which in the case supposed would not exceed 6 or 7 per cent. As the difference in ratio between these two would be small, the shift would be easy, since aside from the inertia of the revolving gears themselves, it is the abruptness of the change in gear ratio that makes shifting difficult, and causes well fitted and otherwise satisfactory gears to grind.

As a matter of fact, any one knows that the ideal conditions above described do not exist as regards the motor car. It must be able to climb any grade up to 25 per cent with ease; and in view of the fact that the steepest hills are apt to have the poorest surface, a margin above even this is sometimes welcome. On the other hand, almost every motorist uses his car principally in the neighborhood of his own home, where the road conditions are relatively fixed and may be classified. If he lives on Long Island or in the middle west, the roads are mostly level and of fairly good surface. If he lives in New York city or New England, the country is broken, possibly hilly; in Pennsylvania it is probably mountainous.

Arrangement of Gear Ratios

Now, the point to note is that almost any arrangement of gear ratios that has been proposed has its advantages for certain classes of road conditions, and the purchaser ought to bear in mind the conditions of his own territory in making his selection. For example, in a practically level country whose roads are good all the year round, it is conceivable that an intermediate gear might be superfluous, and that the high gear could safely be made high enough to develop nearly the full power of the engine under average conditions. The objection to this, however, is that the field of action of such a car would be narrowly circumscribed, and the owner would be badly handicapped if he ventured out of his own domain among hills or on muddy highways. Practically the choice lies between three and four speeds.

Since a long step in gear ratios is undesirable, it follows that the intermediate or the three-speed transmission must be about midway in ratio between the first and third. This results, with cars of about 20 to 30 horsepower, in a climbing ability of about 6 per cent in high on a good road, and 12 to 14 per cent in second. If one lives in an out and out hilly but not absolutely mountainous region, it is quite possible that 50 per cent of the grades he encounters is of 10 to 14 per cent. If

this is the case, a three-speed car will serve his purpose fully as well as one with four speeds, since the latter would prove a little too high in third, and a little too low in second for the average hill. Under these conditions, the best choice is fairly obvious.

Suppose, on the other hand, that one lives in a level country, but still wants hill climbing ability when needed. Ninety per cent of the grades he is likely to encounter does not exceed 4 per cent, and the road surfaces are good the year round. Here the logic of the situation points to four speeds, with direct drive on the high. This not only permits the high gear to be somewhat higher than would be permissible with three speeds, but it gives an easy step down from fourth to third for an occasional mud hole or hill exceeding 4 per cent. If only three speeds were used for these conditions, the average mileage would almost certainly be less, with a slight gain in the matter of gear changing, but with an irksome drop in speed when gearing down was necessary.

Grades on Dirt Roads

Now suppose a third case, which is perhaps commoner than either of the two foregoing, namely, that of rolling country with frequent dirt roads. Here the grades frequently encountered are likely to run up to 7 or 8 per cent, and where the roads are level, their surface is likely to be a bar to fast driving. Nevertheless occasional good stretches are encountered, especially in summer and autumn; and there are numerous easy down grades, which are not quite steep enough to coast with the clutch out. Under these conditions it is obvious that if the fourth speed is direct driven it will fail of its legitimate end, since the whole intent and purpose of the direct drive is to reduce gear friction in the drive which is most used. Manifestly, under these conditions, the fourth speed will not be that most used, unless it is low enough to take at least a 6 per cent grade of fair length. This would limit seriously the maximum speed attainable, and even then would not save the motorist from constantly changing gears. Its sole advantage would be that the step from fourth to third is small, and that consequently the shift can be made without effort.

Gear Changing Necessary

In road conditions such as these, a certain amount of gear-changing must be done if one is to get fair efficiency from his car. This fact cannot be avoided; but on the other hand it seems equally clear that the gear ratios should be so planned that most of the driving will be done in third, and that this drive should therefore be direct. In other words, the car becomes virtually a three-speed car, with a rather low ratio for the direct drive, as befits the rolling character of the country, but with an indirect fourth speed added, which is available for good level roads and slight down grades. The direct third is more efficient on grades than a geared third would be, thus obtaining a wider range of ability in that gear, and in addition it has the inestimable advantage of quiet running and freedom from wear of the gear teeth under the road conditions most frequently encountered.

A Final Analysis

In the last analysis, the average man's willingness or otherwise to shift gears is mainly a question of two things, the ease of shifting, and the flexibility of the engine. If one could under all conditions change gears with the ease with which he can move the throttle lever, he would never think of objecting to the necessity of shifting. If, on the other hand, the change of gears means that he must forget everything but the imperative necessity for dexterous manipulation at the critical moment, with thoughts somewhere in the back of his head of the sprag and of possibly loose brakes, changing gears will be anything but a pleasure, and he will cheerfully agree to shorten the life of his engine a couple of years for the sake of freedom from noise and risk. Again, if the engine and its carbureter are sufficiently flexible to make it easy to run slow in high gear by throttling, and to accelerate smartly when one has slowed down or dropped into lower gear when approaching a blind crossing or railroad track, the motorist will feel no apprehension about using a high fourth gear.

It is perfectly possible to cut, harden and finish gears so that they will slip easily into mesh when the car is running; possible, that is, to a shop foreman and blacksmith who know their business. Some of them today do not, and this fact is partly responsible for the grinding gears with which, happily in diminishing numbers, we are familiar. But progress is being made, and it is in order today for every motor car purchaser to insist that the gears of his own car shall not grind when changing speed. It is possibly a bit too early to propose that the arrangement of gear ratios according to the criteria above noted shall be the determining factor in the choice of the car. After all, the main thing is reliability and good workmanship. But there is hardly room for question that three-speed cars are used a great deal today where four speeds would be better and in the end cheaper. And it is nearly certain that for very many, perhaps, most drivers, as they exist today, the direct third with indirect fourth is preferable to the direct fourth with transmission through two pairs of gears in all the lower speeds.

Bavarian Trade Outlook

Washington, D. C., Feb. 27—In response to an American inquiry as to the sales possibilities for motor cars in the kingdom of Bavaria, an official report says that much may be done in Munich, for the motor car is in great demand. However, in order to introduce it properly manufacturers should have an American agent who understands German—not a German agent who understands English—and they should also establish at either Hamburg or Bremen, which are free ports, a supply station from which the various parts of the cars can be furnished to the purchasers of machines in case they are required. All communications with German firms should be made in the German language. According to official advices, it is claimed that British motor car makers have forged ahead so steadily the last year or so that French supremacy is now lost, and that France is not holding the position it formerly did in this trade. Great Britain has been France's largest customer, but is now not only using an increasing quantity of its own product, but is also looking more than heretofore to Germany and Italy for its foreign supplies. Those countries are therefore, it is stated, adding to the loss of France's motor car prestige. The British maker now considers himself practically safe from serious foreign competition. Besides improving their product, the British manufacturers are concentrating their energies and resources to increase efficiency and reduce expenses.

International Patent Situation

Washington, D. C., March 1—Inventors and factory superintendents will be interested to learn that the latest development in the international patent situation is the convention signed by representatives of the United States and of the German empire in this city last week, whereby this country and Germany bind themselves to pass no law compelling the citizens of either party to the agreement to protect their patents by manufacturing in the country in which the patent is asked. In other words, Germany and the United States have voluntarily given up the economic advantage obtained by England since the passage of the law there requiring the foreign owner of a patent, under the English laws, to manufacture in England itself in order to retain his right to the English patent. This patent convention with Germany does not, of course, affect existing laws by which each country will continue to grant patent applicants sole rights on meritorious inventions. In principle, this new trade convention between the United States and Germany seems to be a proclamation to all the world that these two countries do not fear industrial competition with any other land, and will continue to afford the protection of their patent laws to foreign patentees who may or may not manufacture in another country than their own, as business conditions seem to warrant. This decision on the part of the two governments will be welcome news to the inventors.

The Readers' Clearing House

EDITOR'S NOTE—In this department Motor Age answers free of charge questions regarding motor problems and invites a discussion of pertinent subjects. Correspondence is solicited from subscribers and others.

REPAIRING A CAR

CALISTOGA, CAL.—Editor Motor Age—Having a runabout and being far from any large city, where I could have the work done properly, will Motor Age, through the Readers' Clearing House give me a few pointers in regard to painting my car, so that I could do the work myself. Particularly, I wish to know how many coats of paint and varnish to give it, how often and with what to run it down, the kind of varnish, and the kind of brush with which to spread it.—R. Schmidt.

There are two ways of painting the body of a car. To repaint a car with as little time and expense as possible, sandpaper until a smooth dull surface is obtained; apply one or two coats of color varnish, rub off the gloss, apply one coat of rubbing varnish, again rub off the gloss and apply finishing varnish. To do a first-class job a far more elaborate process would be necessary. The old paint must be cut down with 00 sandpaper till it is as smooth as possible; apply a coat of white lead; let it dry and apply another coat; after this is dry sandpaper again; then apply five coats of rough-stuff with intervals of 2 days between each coat and let it stand for 5 days; next apply a coat of lamp black; rub smooth with rubbing-brick; now apply a coat of flat color; follow with a coat of color varnish; and cut off the gloss with a bunch of hair and pumice stone and water; next apply a coat of rubbing varnish and let it stand for a couple of days; or to make it extra fine apply three coats and rub down with a flat silk cloth and pumice; next stripe it; after striping apply a coat of finishing varnish and the operation is complete.

DEPENDS UPON TYPE

Bellefontaine, O.—Editor Motor Age—I want a motor car for hauling over country roads, with an average load of 1800 pounds. Would it be possible to convert an ordinary touring car into such a vehicle? Could a 20 or 25-horsepower engine be used by gearing it down to a speed of 15 or 20 miles per hour? What does Motor Age think of a high-wheeler for such work? Would stopping thirty times daily tend to give service any less satisfactory?—Subscriber.

It depends as to the design of touring car you have whether it would be possible or not to use it for commercial work with an 1,800-pound load. If you have a shaft-driven car, in all probability you would have to get a new rear axle in order to get a sufficient speed reduction on direct drive. On the other hand, if you have a chain-driven car it is possible to get a proper speed reduction so that the car will travel 10 to 12 miles per hour with the motor working to its point of maximum efficiency. Manufacturers of shaft-driven cars, who have commercialized them, have invariably introduced side chain drive, in order to get the proper speed reduction. Motor Age is not aware of any high-wheelers at present manufactured that would be capable of handling a load of this weight.

MAKES WESTON-MOTT AXLE

Plainfield, Ill.—Editor Motor Age—Through the Readers' Clearing House, will Motor Age give me the name and address of the concern that makes the Weston-Mott rear axle for motor cars?—Steiner Bros.

The Weston-Mott Co., Flint, Mich., manufactures this axle.

PREST-O-LITE DECISION

Indianapolis, Ind.—Editor Motor Age—On page 30 of the last issue of Motor Age we notice that you—as well as one or two other papers—have generally mixed up the decision of Judge Platt, as regards Prest-O-Lite gas tank affairs in Hartford, Conn. We give below a copy of a letter from our attorney on the subject: "Re Wilkinson, before Judge Platt. Wilkinson swore that although he had previously filled Prest-O-Lite tanks he had ceased doing so now. We showed the court that Mr. Wilkinson had on hand some empty Prest-O-Lite tanks, and that if occasion offered he would undoubtedly use these tanks to sell his own gas in. Upon this showing the court stated in open court that unless Mr. Wilkinson entered into an agreement with the Prest-O-Lite Co. that he would not fill Prest-O-Lite tanks with his gas, an injunction would issue from this court forthwith. Wilkinson thereupon signed an agreement that he would under no circumstances fill any gas tanks which could be in any way identified as Prest-O-Lite tanks, and he solemnly promised the court that he would abide by this agreement."—Prest-O-Lite Co.—C. G. Fisher.

NEW IDEA IN SEATS

Chicago—Editor Motor Age—I am greatly interested in body design and have devoted considerable time to a study of the proposition both at the recent shows in New York and Chicago as well as by a perusal of the English motoring papers. It was while pursuing this research that it occurred to me that the modern touring car or four-passenger roadster is deficient in that the designers have segregated the people in the front, who are shut off from conversation, with those in the rear, unless those in front twist around in their seats or talk over their shoulders. This resulted in an idea which I illustrate in the accompanying sketch and which I believe is new. In brief, it is to adapt to the motor car the old swinging back seat, such as used in the open street cars and in railroad coaches; that is, to have the seat at the left of the driver so constructed that it can be swung either front or back, so that the occupant of the seat can either face straight ahead, as he does now, or he can reverse the seat and face the occupants of the tonneau. In this latter position he is one of the party and can join in the conversation without difficulty instead of being simply a companion of the driver, who often is a chauffeur and out of sympathy with the owner of the car or his guests. It oughn't to be any hardship to ride backward this way, for this sort of seat is found in most any of the modern methods of transportation outside of the motor car. This sort of a seat, too, ought to be inexpensive and not destroy the symmetry of the body lines. A bucket seat could be used, which could be upholstered the same as the driver's seat. The back could be attached to metal side arms, which could be pivoted in the center, which would make it most simple to swing it either way.

I must confess the idea came to me after seeing an illustration of the new vitesse body which has been fitted to an English car, the Austin, and which in itself is something out of the ordinary. As may be seen by the accompanying sketches, this Austin has no side doors leading into the tonneau. Instead the passengers reach the rear seat through a lifting seat on the left hand of the driver. It is much after the style used in the earlier days of motoring just after we tried to get away from the rear entrance. However, in this instance, it permits of a most rakish body design being used and is most comfortable for quick traveling.—C. G. Slater.

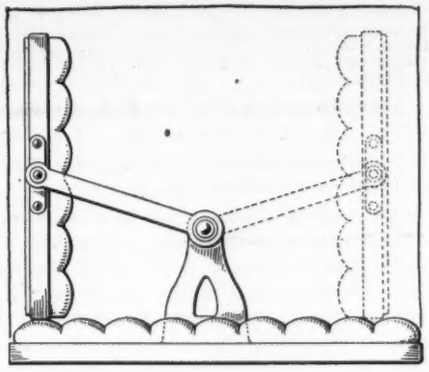
THERE IS A DIFFERENCE

Chicago—Editor Motor Age—In one of our daily papers was an account of a man teaching some women how to use a revolver which was loaded with the exception of one chamber. He pulled the trigger and of course it went off, accidentally killing a woman in another apartment of the same building. This man was exonerated by the coroner's jury of any blame for the killing. How different this would have been had it been a motorist drifting down the street at a lively gait and the woman accidentally stepped in front of the car and was killed! Undoubtedly, he would have been held for manslaughter, and the jury would have held that he

should not have driven so fast, although he had had important business which caused his haste; while, the man with the revolver could not have been in a hurry, or he would not have stopped to give a lesson. Now, whether or not he was in a hurry, why did he not know enough to take out all of the shells and then go out in some vacant lot to do his educating? In my opinion, if this man has sufficient brains to keep him out of the insane asylum, he certainly should be punished for criminal carelessness. Possibly you will say the motorist was violating the law. So was this man a few moments before, for he surely had carried the revolver. Of course you will see I am a motorist, but I have tried to look at the matter as fairly as if I were not. I would like the views of other readers on this subject.—South Chicago Subscriber.

CARE OF BATTERIES

Indianapolis, Ind.—Editor Motor Age—The same thought and attention that every intelligent man bestows on a horse, should be applied to a battery, and the same degree of intelligence that is required for the care of a valuable horse is sufficient for proper management of a battery. The rules to be followed are expressed in different words, but it is curious, if you will think of it, how closely they parallel the rules that apply to a horse. Charging a battery, for instance, is much like feeding a horse. It should be done regularly at the proper times and within proper limits. If you were driving a horse on short trips about town, you wouldn't feed him at every hitching post. Neither should you put your battery on charge every time you house it in the garage. You should wait until the battery has been discharged down to a certain point and then give it a full charge. But a full charge don't mean overcharging, any more than a good feed means overfeeding. Overfeeding a horse may produce fever, and just so overcharging a battery will raise the temperature of the plates unduly and injure them. On the other hand, you wouldn't work a horse until he had used up the last atom of strength in his body, and so you shouldn't use a battery until every volt of current has been discharged. The rule is not to discharge a battery below 1.70 volts per cell—or for a 30-cell battery, 51 volts. That sounds dreadfully technical, but when you come to think of it, it is just the way you should treat a horse. Again, if your horse has been worked to pretty near the limit of his strength, you won't allow him to stand long in the barn without a feed. Just so with a battery. It should be kept charged whether you are going to use it or not. Moreover, it should always have a sufficient supply of water. This is just as true of a horse, though for a different reason, but water is quite as essential to the battery as it is to the horse, and the strength and vitality of one can not be maintained any more than the other without water. Of course the analogy might be pushed too far, but it is a general truth that if a man will give the same intelligent consideration to the needs of his storage battery as to those of a "hay motor," the care of an electric will prove far easier to him than that of any horse, and the satisfaction of its use far greater.—H. H. Rice.



REVERSIBLE FRONT SEAT FOR CAR

LARGE VALVES PRACTICAL

Iowa City, Ia.—Editor Motor Age—I am a prospective buyer of a certain make of car, the motor of which has large valves, but I have been advised by a friend that large valves cause buckling, due to excessive heating. Will Motor Age give me its opinion on large valves?—P. G. Schmidt.

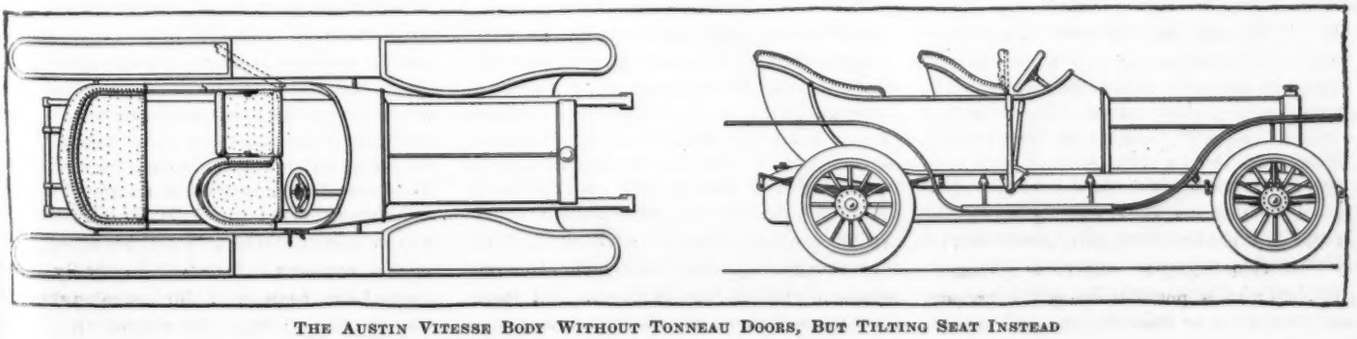
Experience has proven there is no danger in large diameter valves buckling, as suggested by your friend. Large valves have been used on some cars with the greatest success in the big races during the past year, and during the past season several standard touring cars have had large valves and have had no trouble with such. The large valve gives increase in power and speed of the motor. Certain makes have used large valves for 4 years with good success.

USE OF BALL BEARINGS

Philadelphia, Pa.—Editor Motor Age—As motoring experience is largest in Europe, I have carefully gone over the rear and front wheel and axle mountings of heavy and light touring cars from 1905 to the present time. In order to eliminate all possibility of misunderstanding, I have considered as evidence only the cross sectional illustrations found in any European class journals. Of such illustrations out of a total of ninety-five, ball bearings are shown in ninety-one, plain bearings in three and roller bearings in one. Those familiar with the early practice will remember that plain and roller bearings were at first in the majority. The lesson taught by experience is plain: Mounted on ball bearings, 91=95.8 per cent; mounted on plain bearings, 3=3.2 per cent; mounted on roller bearings, 1=1.0 per cent.—Henry Hess.

CHAIN VS. SHAFT-DRIVE

La Salle, Ill.—Editor Motor Age—While not wishing to attempt to contradict the statements of A. E. Michel, in Motor Age, issue of February 18, or to blame the chain manufacturers for attempting to reinstate the chain drive in general favor, still more information on the subject of chain drive versus shaft drive may be of interest. Will Motor Age, or some of its readers, explain the difference between driving from a short—in the gearbox—through a set of bevels to the countershaft, and driving from a long propellershaft to a set of similar bevels on the rear axle. The differential occurs in both cases, similarly located, with reference to bevel gears. Of course, these gears are of different ratios in the chain-driven car, but is this sufficient to make up for the increased complication of countershaft and its bearing in addition to the chain and sprockets? To our mind the two cases are very similar with the item of simplicity in favor of the drive which has no countershaft. We admit that the rigidly fixed bearings of the countershaft have an advantage over the spring-supported live axle bearings, and that in some shaft-drive designs the cardan joint might be a source of trouble not found in the chain system. As far as engine strains and torque are concerned,



THE AUSTIN VITESSE BODY WITHOUT TONNEAU DOORS, BUT TILTING SEAT INSTEAD

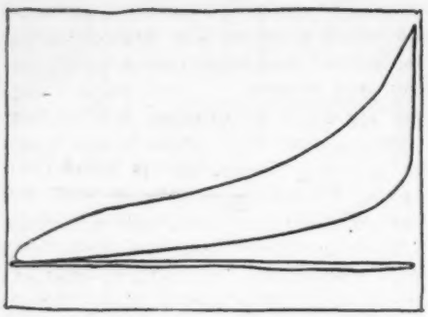


FIG. 1—FRANKLIN EXHAUST CARD

it seems that when the resistance is gained through springs—as in the shaft-drive system usually—it has an advantage over the rigid resistance of the chain-drive. More on this subject will be of great interest, undoubtedly.—Reader.

UPHOLDS SHAFT DRIVE

New York—Editor Motor Age—We beg to differ with Mr. Michel on the statement which he makes in a recent number of Motor Age that very little information appears in print concerning the relative merits of cardan shaft and chain for the transmission of power in motor service. The majority of the manufacturers issue catalogs in which the merits of the cardan shaft are fully discussed, and discussions on this subject have appeared in daily papers at various times. The fact that the chain-drive requires a three-column defense by Mr. Michel, when a few years ago practically every high-powered car was chain-driven, indicates the increasing popularity of shaft drive. Chain manufacturers have found it necessary to issue an appeal to the few remaining chain-drive manufacturers to assist them in an effort to endeavor to stem the tide which is overwhelming them. The Lozier company predicted 1 year ago, and are publicly continuing the prediction, that no car claiming to be of the highest grade and quality can be successfully marketed in the future with chain-drive mechanism, and the fact that one by one the manufacturers who have heretofore been held up as prominent examples of chain-drive advocates are building shaft-drive cars and abandoning the chain-drive models, indicates the eventual fulfillment of our prediction.

Mr. Michel makes some statements which are hardly borne out by facts. He says, for instance, "there never was any doubt that the chain makes the faster car." He cites the Savannah grand prize race on Thanksgiving day when all previous record for American road racing were broken, and states that it was a chain-driven car that made the showing. It is true that a chain-driven car won, but he overlooks the fact that the best speed during the race was made by the Renault, a shaft-driven car. According to the electro-magnetic timer of Trego's, the fastest times made for a mile during the race were as follows:

Car and type	M. P. H.
Renault, shaft	101.1
Benz, chain	100.0
Itala, shaft	99.8
Renault, shaft	99.2

Notwithstanding the fact that the most of the cars were chain-driven, out of the four cars making the fastest time three of them were shaft-driven.

His argument that the smaller dead weight of the chain-driven car makes it reasonable to expect it to travel faster and further on one filling of gasoline is an assumption that the shaft-drive car must of necessity be heavier than the chain-driven car, which assumption is not borne out by the facts, for in the Savannah grand prize race the two lightest cars in the race were two Renaults, weight 2,525 and 2,550 pounds, respectively, while the heaviest was a chain-driven car—the Simplex—weighing 3,325 pounds, the winning chain-drive Fiat weighing 2,750 pounds, and the second car, a chain-drive Benz, weighing 2,925 pounds.

The proposition that the chain is more efficient than shaft-drive on account of the liability of mitres or bevels of the gear spring out of line is a fallacy, as Mr. Michel should know, for every chain-drive car must of necessity possess two bevel gears through which power must be transmitted, and in addition to these two bevel gears there is the added loss of power in the chains and sprockets, which is not the case in the shaft-drive, which transmits the power through the two main bevels merely. The argument that mitres and bevels might spring out of line and could not be repaired without expert mechanical skill is one which no manufacturer of a high-class car would now argue against, for it is improvements in shaft-drive construction which have made misalignments of this kind practically impossible, that have doomed the chain.

Mr. Michel speaks of the tendency of an axle to sag, probably not being aware that a number of manufacturers of high-powered shaft-driven cars have in their entire season's output not experienced a single case of a sagged axle. It is, of course, more difficult to design and make a successful cardan shaft rear axle than to build a chain-drive transmission system, but that there are manufacturers who are capable of producing such a mechanism is a matter beyond dispute. The fact that such concerns as the Mercedes, Fiat, Benz and Panhard, among the foreign builders who are placing on the market shaft-driven cars, and good American manufacturers of equal prominence who have heretofore confined their efforts to the manufacture of chain-driven models are now for the first time building shaft-driven cars, is the best argument as to the efficiency and desirability of the cardan shaft as against the chain. We cannot recall a single instance of a shaft-driven car the manufacturer of which has abandoned the shaft for the chain. It is probably true that as Mr. Michel states there

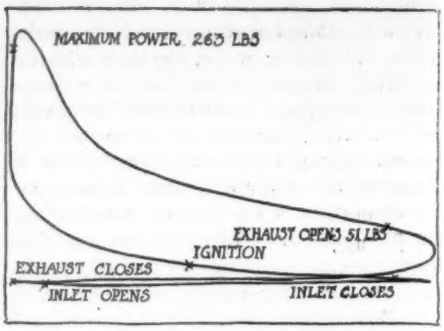


FIG. 2—FRANKLIN EXHAUST CARD

were more chain-driven cars exhibited at the Paris salon in 1908 than in previous years, but it is probably equally true that there were more shaft-driven cars exhibited, and it is a matter of record that the increase in the number of shaft-driven cars exhibited was greater than the increase in the number of chain models. In regard to the statement that "chain-drive manufacturers insist that the number of 1909 chain-driven cars will be about double that of 1908," we are willing to grant that they are right, and if they are we assert our belief that the number of shaft-driven cars will be quadruple the number built last year.—C. A. Emise.

LOUGHEED'S MOTOR

Abingdon, Ill.—Editor Motor Age—Through the Readers' Clearing House will Motor Age state in what issue Victor Lougheed's motor was described?—Subscriber.

This motor is described in detail in Motor Age, issue of August 22, 1907.

ANSWERS ONE QUESTION

Syracuse, N. Y.—Editor Motor Age—In this department of Motor Age, issue of January 28, we noted "Ten Questions on Motors" from a reader, and for his information I would say that the auxiliary exhaust in the Franklin cars keeps the engine cool by reducing the time which the cylinder walls are subjected to the action of very hot gases to practically one-half of what it would be were no auxiliary exhaust used. By thus scavenging the cylinder of about 70 per cent of its hot spent gas, and that by means of the gas' own pressure, the main exhaust valve has very little harder work to do than the inlet valve and does not get much hotter. This cannot be said of any motor using no auxiliary exhaust. Witness the number of instances of burnt valves and the prevalence of seriously pitted ones. Franklin valves give little or no trouble from pitting. The best illustration of what the auxiliary exhaust valve really does is in comparing the indicator cards taken from engines, with or without auxiliary valves. These cards formed part of a paper by Mr. Wilkinson before the A. S. M. E. Fig. 1 shows a card from a 4 by 4-inch engine with auxiliary exhaust opening at about 40 degrees before the end of the stroke. Fig. 2 shows a card

from a 4 by 4½-inch engine with the main exhaust opening about 40 degrees before the end of the stroke, but with no auxiliary exhaust. It will be noticed that these cards prove the point that the auxiliary exhaust immediately reduces the pressure so that by the end of the stroke it is practically negligible, thus eliminating back pressure, while in the case of the engine using no auxiliary exhaust this pressure does not drop appreciably until after the exhaust stroke is well under way. —J. E. Walker.

GOOD ROADSIDE TIP

Sacramento, Cal.—Editor Motor Age—Being an interested reader of Motor Age, I recently came across an inquiry as to what could be done when stuck on the road with a set of dry cells in order to get a few more miles out of them. It may be of interest to some who have had such "hang-ups" to learn of a simple remedy which I know works out well and for a short time will make the cells nearly as strong as new. Take off the outer paper casing, punch a few holes through the line to the carbon center, make a solution of sal-ammonia, using about 1½ ounce to each cell, and dip them into this, leaving them for about 10 minutes. If a few old tin cans can be had in the locality, allow each cell to stand in the "juice"—it is still better. If this method is followed and the zinc casing is not gone altogether, success is certain. This holds good only for the so-much-wished-for "few more miles."—C. M. Petersen.

UPHOLDS PRESENT CAR DESIGNS

Philadelphia, Pa.—Editor Motor Age—In reply to L. G. Stepzinski, page 22, Motor Age issue of February 25, I would say that if Mr. Stepzinski will get busy and make himself a little more of an expert and study car construction a little more, he will see a few hundred points about his specifications and suggestions whereby some of our good American motors would be greatly deteriorated instead of improved. Personally, I am very ignorant on this subject, having followed the industry for the past 7 years, but I never have had the temerity to offer such a brilliant lot of suggestions, and do not intend to do so. In the first place I think it is a crime for any one not capable of driving a car to attempt to do so, and, if one of these fearfully complicated cars can be understood and driven properly by a 17 or 18-year-old driver, and there are quite a few young Americans who do this every day, where must Mr. Stepzinski be? What is the matter with either the jump spark or make-and-break systems of ignition? What is the matter with the side levers? Mr. Stepzinski must remember there are good reasons for having them. I am speaking of motor cars and not reclining chairs. In reference to gear ratios: Does he consider 2.5 to 1 or 3 to 1 too great a reduction for a 50 or 60-horsepower motor, or would he rather have a motor that would have to run like a buzz saw to keep up with a funeral procession? My theory is to have a motor powerful enough to take you where you want to go, and I find there are few that will not do so. Have a reasonably high ratio on direct and use a good sliding gear transmission and do not be afraid to use it. A gearbox is good enough to carry, and so it should be good enough to use. If drivers would make more use of the gearbox, there would be less work for the repairman. What is wrong with the transmission on the rear axle? Can Mr. Stepzinski give a good reason for not putting it there? I have never heard of any objections to such a construction, or have I ever found any real objection to placing it on the chassis, or integral with the motor base. And as for a planetary transmission on a powerful car, for my part, never, for there is only one speed on it when I would find satisfaction, namely, the high, for obvious reasons.—A. A. Dayton.

FITTING FRICTION DRIVE

Spencer, Neb.—Editor Motor Age—I have a 35-40 horsepower touring car, a 1908 model, equipped with a progressive sliding transmission, which gives me considerable trouble in changing speeds. Can Motor Age inform me if it would be practical to have the car equipped with a friction transmission, such as used on several machines and which I have seen advertised in Motor Age? Would it be practical to equip the car with 38 or 40-inch wheels? I am now using 34-inch wheels. My object is to secure greater clearance and easier riding. Also advise me where I could secure a friction drive and extra wheels.—P. C. A.

It would be considerable of an undertaking fitting a friction transmission to a car with a progressive gearset, particularly if your car is of the shaft-drive type. In order to do this, it would be necessary to perhaps alter the subframe construction in order to give you room for the piston disk. You would, in all probability, use chain transmission and so would require a stationary rear axle. The proposition looks an enormously big one, undoubtedly too big for the valve of your car. If you are having trouble with the present gearset, the best solution would be securing from some gear manufacturing company a selective set which could, undoubtedly, be fitted in your car at much less expense than changing to a friction system. It would be possible to change 38 or 40-inch wheels, but you would have to use a different gear ratio between the motor and rear wheels. Pneumatic tires would cost considerably more than those for 34-inch wheels. It would be more advisable to try improvements in the springs than adding larger wheels.

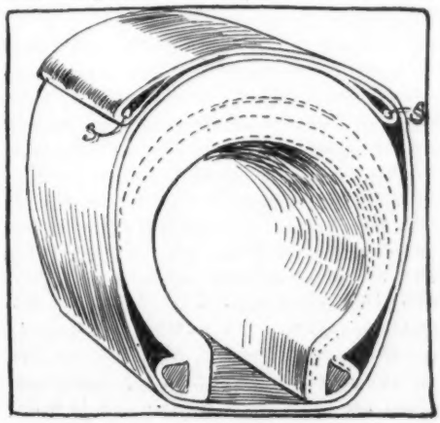


FIG. A—HOPEWELL TIRE CASE COVER

REMOVING CARBON

Stafford, Kan.—Editor Motor Age—Will Motor Age, through the Readers' Clearing House state all causes of knocks which occur in two-cylinder single-chain drive cars? Also give the best remedy for removing carbon.—R. N. B.

The best method of removing carbon is to secure one of the carbon-removing solutions, a number of which are on the market at the present time, or to use kerosene. When a carbon remover is used, the directions given with it should be followed. Where kerosene is used the best policy is to put a teaspoonful or two in each cylinder at the end of the day's run, leaving it in over night. This loosens the carbon sufficiently so that the first few minutes of running the motor it will practically all be blown out.

DRY CELLS vs STORAGE

Vandergrift Heights, Pa.—Editor Motor Age—I am running a 22-horsepower car with five dry cells. Would six or seven be better? Would I get better results with storage batteries?—J. L. B.

The coil you use is built for 6-volt purposes and four dry cells at 1½ volts each would give this amount. Not a few makers use five cells, which would give 7.5 volts. The five are no doubt used because the coils absorb too much current. If your coil adjustment is all right there would be little value in using the seven dry cells, unless the seven are in a deteriorated condition. The storage cell might prove more reliable because it frequently happens the strength of the different dry cells vary considerably, the result being the total voltage is low.

SEEKS A TIRE COVER

Plainfield, Wis.—Editor Motor Age—Can Motor Age give me the name and address of the concern manufacturing a tire cover or case made of oil-cloth or waterproof fabric which is held in place by two endless coiled springs, one on each side of the fabric, which is wrapped about one and one-half times around the casing? I understand such a cover is now on the market.—W. B. Angelo.

A tire cover of this style is manufactured by Hopewell Brothers, Cambridge, Mass., and, as illustrated in Fig. A, the case is held by two endless spiral springs S. These springs are japanned piano wire. The illustration shows how the cover overlaps on the tread.

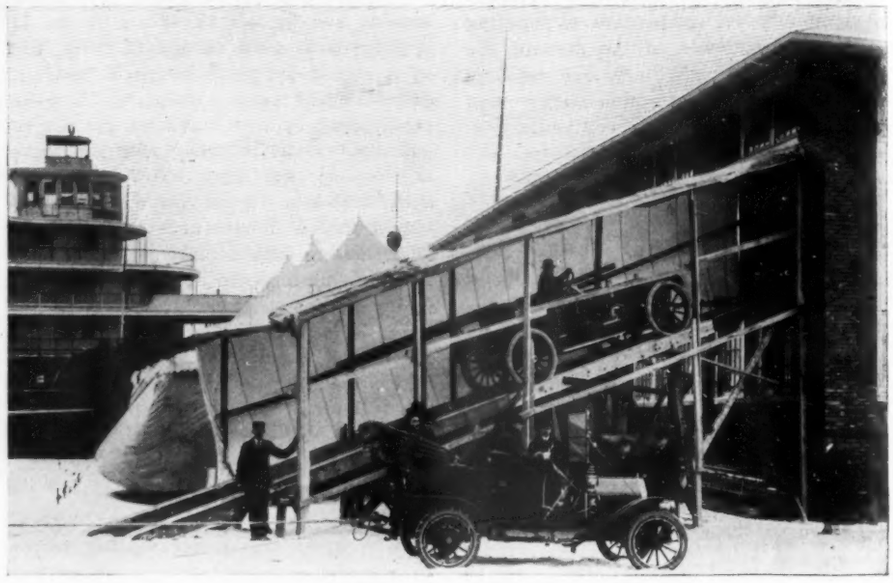
From the Four Winds

N S E W

Dance for Motorists—The officers of the Bay State A. A. are completing arrangements for a ball to be held the night the motor show closes. It will be held in Paul Revere hall, which is in the show building, so the visitors and dealers will have only to walk upstairs when the show closes.

Toledo Dates Chosen—The Toledo Automobile Dealers' Association has decided upon March 22 to 27, inclusive, as the time for holding the next show. A deal has been closed for the use of the spacious auditorium at the Coliseum. Details are being rapidly arranged and the coming meeting promises to be one of the most interesting held in Toledo for a long time. Last year's exhibition was an interesting one, but the promoters of the coming affair say that it will be immensely more so.

Another Road Scheme—Another important step in progress for good roads in Pennsylvania has been taken in Lancaster and Chester counties by the formation of the Inter-County Good Roads Association to promote the construction of a state highway from Lancaster to Coatesville over the old Philadelphia road, known originally as the king's highway, which was built in 1733. Prominent citizens all along the proposed route are taking an active part in pushing the project. Supervisors of the six different townships through which the route passes look with favor on the movement. Already Chester county has placed to its credit several miles of high-grade macadam leading out from Coatesville to within a few miles of the Lancaster county border and State Highway Commissioner Joseph W. Hunter has been petitioned for the remainder. Organized efforts in Lancaster county expect to bring forth the remainder of petitions by May 1 so that the highway department may be given every facility in surveying and planning for the construction work in 1910. The officers of the new organization elected at the Coatesville meeting were: President, Donald McCaskey, of Witmer; first vice-president, W. S. Young, Coatesville; second vice-president, S. H. Scott, Coatesville; secretary, A. C. Baldwin, Cains; treasurer, Jonas Neuhauser, Bird-in-Hand. The entire distance between the two cities is 30 miles, the road passing through some of the finest farming country in Pennsylvania, especially in Lancaster county, where originally the lands were taken up by the Pennsylvania Germans and now are occupied by their descendants. This route will in no way conflict with Governor Stuart's state highway from Philadelphia to Pittsburg, should the governor's idea be carried out and the present site of the old Lancaster pike be used for the trans-state project. It will, on the other hand, fall in with the great trans-state highway and become a part of it if the highway department officials have their way, as they look with much favor on the king's highway route.



E-M-F Doing Heavy Work at Detroit Show

Give Up Hall Idea—It has been decided not to urge this session of the Indiana legislature to appropriate $60,000 for a machinery hall at the Indiana state fair grounds, Indianapolis. This decision has just been announced by the state board of agriculture. Motor car men were asking that the building be erected, in order that they might have some place available for indoor shows. The question will be taken up again at the next session of the legislature in 1911.

Long Non-Motor Stop Run—Manager F. J. Tyler, of the Boston branch of the Maxwell-Briscoe company, has completed plans for a 10,000-mile non-motor stop contest in New England. He proposes to have it run off this month. The start will be made from Boston next Saturday some time. The routes selected will be from Boston to Worcester, Boston to Providence and Boston to Portsmouth, N. H., alternating each trip. That will give a mileage of about 100 miles for each round trip. The Bay State A. A. will be asked to appoint officials for the run, so that there will be no question as to the authenticity of the record if the car completes it. Mr. Tyler figures it will take about 3 weeks to finish the trip if everything goes well. There will be no attempt to make any speed records. The car used will be a 30-horsepower four-cylinder model. Lucius Tyler and Ralph Coburn, the two men who created the Boston-to-Albany-and-return record in a Maxwell last year, probably will drive the car, though it is possible that C. W. Kelsey will pilot it a few trips during the week of the motor show, when he will be in Boston.

Getting Out Route Book—The Minnesota State Automobile Association is making plans for the publication of its annual route book containing information as to routes, roads and hotels throughout the state and has invited the co-operation of all motorists who made observations during their tours last summer. This information will be gathered and tabulated, new maps will be made and in every way this route book will be complete and of great help to tourists in the state.

Works Hard for City—Some idea of the scope of the work done by the Pierce-Arrow car sold to the city of Pittsburg recently is shown by the following statement made by Edward G. Lang, director of the public safety of that city, in an interview published in a Pittsbrug paper: "Pittsburg is getting to be a very big city, and the need of a police motor car has long been realized in this department. It is not a police luxury; it is an absolute necessity. By the use of this car we can save much time and greatly facilitate the work of the police. The present transportation facilities for the Pittsburg police are primitive and crude compared with what we can accomplish with motor cars. I have no doubt more of these machines will be put into service when their value has been demonstrated." The Pierce-Arrow used is one of 40 horsepower and

is fitted up with two dash cabinets arranged to carry heavy revolvers and handcuffs and holsters for three high-power rifles. In addition to these, large fire extinguishers will be carried on the running boards.

Unique Honor for Club—The Ashland Automobile Club, of Ashland, O., has the honor of being the first organization to travel by special car over the recently completed Cleveland, Southwestern and Columbus traction line to Cleveland. A car was chartered in order to permit the members to attend the recent motor car show at Cleveland.

New Road Tax Scheme—A recent bill introduced into the Ohio legislature by Representative Braun, of Columbus, contemplates a distribution of the expense of building county roads. Under this measure it is proposed that the county pay 40 per cent of the cost, the township 35 per cent and the adjoining property the balance. The present law taxes the entire cost against the property owner.

Helping the Apprentices—The Locomobile Co. of America, of Bridgeport, Conn., has devised a clever scheme, issuing diplomas to apprentices graduating from its plant. Each graduate receives two diplomas, one suitable for framing and the other for carrying in a pocketbook, this certifying over Superintendent E. F. Russell's signature that the holder knows his business. All regular 3-year apprentices go to school 2 hours per day. Classes are divided so they are not all taken from one job at the same time; some of the boys go in the forenoon, some in the afternoon. At present they go 4 days per week; the days are staggered. In this way the company does not find it a hardship, and expects to gain from the boys' added knowledge and consequent interest what they have paid out for this tuition. The school is the industrial end of the local Y. M. C. A. Each factory that sends apprentice boys pays its share for maintaining the school. Practically all the factories in town that have regular apprentices contribute. The classes are practical and include simple arithmetic, algebra, mechanical drawing in its various branches, the higher classes of geometry. They also teach grammar and other kindred studies. The school has been in operation some 4 months and promises to be a success from the start.

Four Days at Milwaukee—The first annual Milwaukee show in the Hippodrome, Milwaukee, under the direction of the Milwaukee Automobile Club, will be a 4-day affair. Early this week the show committee decided to add a day, because assurances had been received of an attendance that cannot possibly be crowded into 3 days. The show will open at 8 o'clock Wednesday evening, March 10, and continue until Saturday night, March 13.

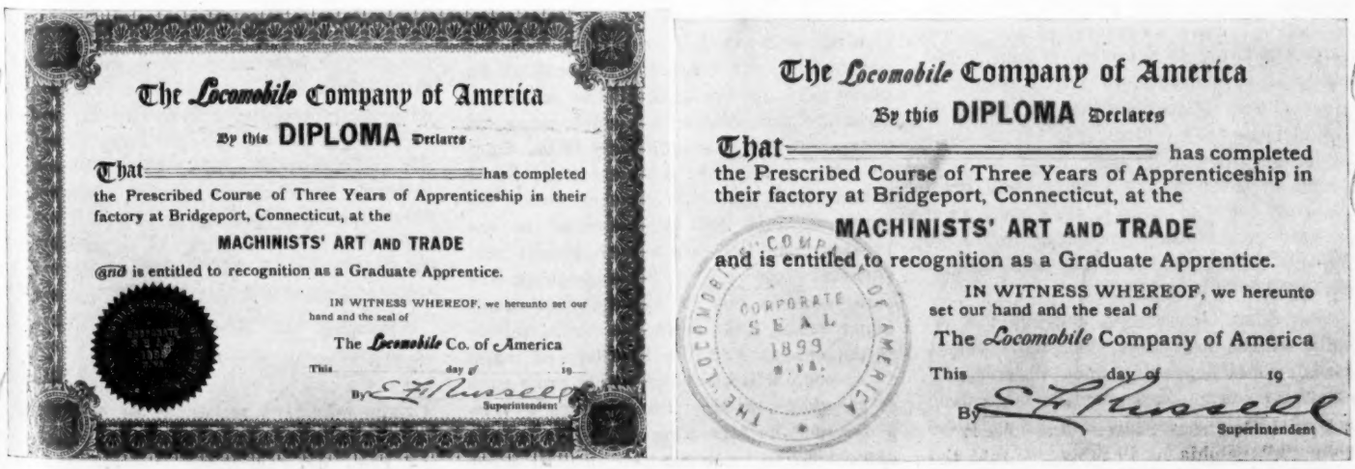
Talk Good Roads—An interesting meeting was held at the courthouse at Wauseon, O., last week by the street commissioners and road supervisors of Fulton county. The meeting was called to discuss road building and repairing. The principal address was made by Postmaster W. H. Tucker, of Toledo. He contended that the chief defect of present-day road building was that it is of a temporary rather than a permanent character. He advocated the construction of stone and cement roads, on long-time bonds, letting posterity stand a portion of the cost. All parts of the county were represented and the interest was very marked.

Heavy Work for E-M-F—The management of the recent Detroit show solved a difficult problem when it rigged an E-M-F to a block and tackle and used it to haul the cars up an incline that had a rise of 13 feet in 40 to the second floor of the Wayne pavilion. Sixty-two cars had to go up this incline and they had to be hauled up because it was impossible to secure permission to build a runway across the street. Gasoline not being allowed in the building, it was impossible for a car to attempt the climb under its own power. Finally Manager Pelletier put an E-M-F on the job and that car worked 36 hours pulling fifty of its rivals up the incline. Securing traction was the greatest problem and this was solved by loading men into the tonneau. It took eight men to get traction for the heaviest car, a limousine weighing 5,500 pounds. A 1½-inch rope and a single and double block were used.

Farmers' Census—At the recent meeting of the Federated Mutual Fire Insurance associations, at Columbus, it developed that the farmers of Ohio are replacing their old modes of travel by motor cars in large numbers. The question of how these machines are to be insured proved one of the important questions of the meeting.

Working on Speedway—Work is progressing as rapidly as the weather will permit on the new track of the Indianapolis Motor Speedway Co. at Indianapolis. Stakes have been set for the track and a 6-inch gas main is being run to the grounds for the use of the national balloon race to start from the track June 5. It has been decided to make the outer track of the speedway 2½ miles with the inside track 2½ miles, instead of 2 miles and 3 miles respectively as at first planned. It has been found this can be done without interfering with any of the arrangements for the grand stands and other buildings.

Booming Electrics—A meeting was held at the Boston A. A. last week at which a number of men interested in the development of the electric vehicles discussed the situation in New England. Plans were outlined to canvass the entire electric field and extend the system. It is proposed to establish numerous garages and charging stations at convenient points for the accommodation of owners of electric pleasure, professional and commercial vehicles, so that in future a driver may feel sure that he may be able to have his batteries recharged whenever he goes beyond the limits of the battery capacity. Arrangements are being made whereby an owner may obtain systematic inspection of his battery either in a public garage or at his own one. In some cases battery relay stations may be provided. There will be talks and lectures, too, on both pleasure and commercial types for the benefit of owners and drivers.


The Locomobile Company of America
By this DIPLOMA Declares
That _____ has completed the Prescribed Course of Three Years of Apprenticeship in their factory at Bridgeport, Connecticut, at the
MACHINISTS' ART AND TRADE
and is entitled to recognition as a Graduate Apprentice.
IN WITNESS WHEREOF, we hereunto set our hand and the seal of
The Locomobile Co. of America
This day of 19
By E. F. Russell
Superintendent
The Locomobile Company of America
By this DIPLOMA Declares
That _____ has completed the Prescribed Course of Three Years of Apprenticeship in their factory at Bridgeport, Connecticut, at the
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Superintendent

DIPLOMAS GIVEN GRADUATING APPRENTICES BY LOCOMOBILE CO. OF AMERICA

TESTING STEEL WITH THE SCLEROSCOPE

By Thomas J. Fay

PHYSICAL hardness in steel as it is used in motor car work is a phenomenon which has to be varied to suit the service to be rendered. In the old way of arriving at the facts in relation to this property, it was the custom to take into account the carbon content of steel, and the temperature at which the steel would be quenched, as well as the subsequent annealing process. It was a hit-and-miss game at best, on the count that the carbon content is not all to be taken into account, and the bulk of the steel also has to do with the result, even assuming that shape is not a large factor.

Fig. 1 shows the Shore scleroscope, the main ability of which is to enable the determination of the physical hardness of materials, notably steel; which information is valuable, in that it reflects, to a considerable degree, the several other qualities residing in the steel. From the stylus, with its diamond point—used to scratch the steel, to show its hardness—to the methods of Brunnell, in which the steel is indented, was a long way, and the indentation of the little—hardened—steel ball, as used in the Brunnell plan, does extremely well by way of indicating the hardness of steel, if the same is soft enough to respond to the process. In the meantime, the Shore method comes as a great advance, in that the metal does not have to be scored, indented, to any great extent, or crushed.

In the early days, in which carbon steel was the mainstay, it was not considered difficult to determine the hardness of the steel, particularly in view of the fact that the carbon content was as a good guide; at the present time it is not possible to go by the carbon for the reason, that it is not carbon on which reliance is placed for the great hardness to be noted. Then, it is a fact, that full knowledge of the properties of alloys is not available, and the result is that it is no longer possible to make a good guess, even in the absence of a test, which is but another way for saying that the test, if made, could be gauged, as to its probable accuracy. Owing to the great hardness of alloy steel, tests for hardness are more difficult, especially if it is desired to arrive at conclusions closely approximating the facts. It would be a very difficult process to use a stylus on quenched alloy steel balls as found in some of the superior ball bearings, or, for that matter, alloy steel as it is used in transmission gears would be beyond the art of the metallurgist equipped with a stylus.

The Shore scleroscope depends for results on the fact that steel will vibrate more or less depending upon its strength, elasticity and hardness, considering a fixed set of relations, taking into account the shape of the specimen used in the test and the manner in which the test is conducted. In the Shore method, then, it is the aim to interpret the hardness of the material in view of the elasticity of the same. But in this will be found much food for serious reflection, in view of the small drop-hammer with which the scleroscope is equipped, and the fact that the minute device could scarcely create more than a ripple in a "molecular sea." It is quite out of the question to assume that the "fiber elasticity," of the material undergoing test, is the phenomenon which is responsible for the accuracy of the scleroscope, in its search for the hardness of material.

That the hammer of the instrument searches out the molecular structure, and compels a response to the impact of the hammer, is what seems to be the rational claim. Relative molecular motion must result in local deformation if it is true that recuperative ability is absent. In other words, if the steel is stressed locally, and the stress is so great as to exceed the recuperative ability of the same, it is a "dent" which will be noticed, and in the Brunnell test is the "depression" which is looked upon as an indication of hardness. Under the circumstances, it is probably true that the Brunnell test falls short of accuracy, for the very reason that it breaks down the—molecular—structure, and the same is then incapable of telling the story for the very reason that it is broken down.

Within the elastic limit, materials follow well defined laws, and in working materials it is the aim to keep well within the elastic limit, for the reason that once the material is stressed to the "yield point" it will no longer respond; the laws, of which knowledge is potent, are overstepped, and the student is lost in a sea of conjecture, with failure heaped about him as the only tangible dividend. In the same way it must be that tests for hardness which destroy the structure fail to tell of the force on the one hand and the resistance—negative force—on the other.

What is wanted, then, is a means for determining the force which would attain permanent deformation of the molecular structure, without actually deforming, in excess of the recuperative ability, since to tell the tale, the material must be in a recuperative state. In other words, the material must not be destroyed in the process, else the information sought will sink into oblivion in company with the form crushed out of the material undergoing test. Even with the Shore scleroscope, evidence of the inability of metal to respond will be found if the same zone is struck repeatedly; the readings will be different; the structure undergoes change sufficiently to be noticed on an instrument of such nice delicacy.

The instrument takes into account the usual laws of impact in which the impact or blow that a body is capable of delivering after it has acquired momentum, in response to a force, acting during a greater time, is used to conquer a greater force in less time. Were it possible to estimate exactly the ratio of the intervals of time, this ratio would serve to indicate the ratio of the force of impact. Impossible as this would seem to be, since the lesser interval of time is as the infinitesimal increment, it renders it desirable to approach the subject from the other point of view and estimate the values involved in the spaces through which the masses move.

In general, it is to say that if W equals the weight of the hammer and h equals the height of fall, Wxh will equal the energy of the blow; that is to say, it will equal the energy residing in the hammer at the instant of contact. The energy will be employed in the manner as follows: a, in compressing the hammer; b, in compressing the test specimen on which it falls; c, in compressing the base on which the specimen is rested; d, to a minute extent in friction, etc.

Plainly, then, account must be taken of the relative hardness of the hammer, which is compressed, and the specimen, which is also compressed; the clamp "should be devised in such a way as not to introduce a notable factor into the calculation. That the relative hardness —of the hammer and the specimen—is not a matter which will defeat the project is assured from the fact that the instrument serves the purpose with lead as well as with hardened steel. The great advantage of the instrument lies in the fact that it is capable of measuring the compression of the specimen, and to respond to the compression of the hammer, small as the values are, despite the fact that the feat was looked upon by the scientists as quite beyond the pale of human ingenuity.

In view of the wide use to which an instrument such as this might be put, it is extremely important to feel sure of the basis of its application, which, up to the present time, has been much discussed, although the conclusions thus far reached fail to impress one as being in full accord with each other, or sufficiently in accord to be regarded as lasting. Even as it is, the question of the effect of crushing the molecule structure, with its consequent effect upon the readings is one which will have to be investigated at some length, since it is true that the readings will differ if a blow is struck twice on one spot.

Assuming the conditions—which must be satisfied—to obtain as follows:

Let

R = the effective resistance of the specimen to be tested;

= the total resistance, less the weight of the members;

S = area of the head of the hammer in contact with the specimen;
P = the pressure, at any instant, exterted between the hammer and the specimen, which ultimately reaches the pressure at the instant of maximum compression of the specimen;
E = modulus of elasticity of the material;
L = depth of the specimen acted upon;
W = weight of the hammer, as before given;
h = height of fall, as before given.

The distance of fall of the hammer, after actual contact, during which the specimen is being compressed, is the compression due to the maximum effort, and will be equal to:

$\frac{RL}{ES}$; which takes into account uniform compression; it is in this connection that speculation will creep in, in that the compression may be so localized as to render an estimate of the distance L difficult to ascertain.

In all events the work performed in compression will be equal to:

$\frac{R^2 L}{2ES}$

Were it possible to consider a second blow on the same surface, noting the added compression, it would then be fair to pursue the matter at further length, and end by solving for R, which, as before stated, represents the effective resistance of the specimen to be tested. In the absence of this ability it is possible to note on an arbitrary scale in the instrument what may be called relative resistance.

The work performed in the process is as R^2 by the depth L of the molecular disturbance; taking it for granted that the area S, of the zone, is as the area of the hammer in actual contact. The modulus of elasticity of the material will serve to modify the conclusions, in so far as 2 E S will have bearing upon the situation, if it is true that the modulus E is a variable in steel, that is to say, a variable of some magnitude. It has never been definitely settled that the modulus E is much different in the several grades of steel, as in alloy steel, relative to carbon steel.

In view of the fact that R^2 will have the greatest influence on the situation, and that S, if small, adds to the efficiency of the scheme, it is plain to be seen that appreciable readings will follow even if L is of an unassignable magnitude. Since R increases with the hardness of the steel, and R^2 is the value which influences the situation, it would seem as if the harder the steel the more pronounced will be the reading on the scale, although it is true that the diminishing value of L will taper off the readings.

When a force acts upon a body secondary force, or a force of reaction, is at once set up, equal and opposite in direction. The hammer is thus brought to rest, and the only phenomenon in which interest is here taken lies in the ability of the steel to resist the force, and snub the motion within the shortest interval of time. On the arbitrary scale, which takes notice of the rebound, the ability of the steel is disclosed, since in the absence of hardness the distance L would be increased, but the value of R would fall away, and since the magnitude is proportional to R^2, it is plain to be seen that rebound would be less pronounced; proof of which lies in the fact that the expenditure of energy would be maximum in the case in which motion is arrested within the shortest distance of travel. In actual practice it is found that with lead the readings are about 2 per cent of what would obtain with steel under the same conditions. In this is an indication of the working out of the law, showing that the value of R^2—increasing—is a sign of hardness, while increasing the value of L is by way of reduced hardness. True, the two factors are for hardness, but one increases as the other decreases, and the value which increases as the square is the value which has the most marked effect by way of engendering hardness.

The regular Shore scleroscope is intended to measure the hardness of the hard grades of steel, as medium and high carbon steel, as well as the alloy steel products. In the cases involving soft metals what is called a "magnified hammer" is used. In both cases the hammer weighs but 1-12 of an ounce, and it is figured that—in view of the area—the hammer is capable of exerting a pressure of 500,000 pounds per square inch. A close inspection of the formula will disclose the surprising fact that the weight does not have to be great; it is even possible to consider that the weight should not be beyond a certain point. What the formula demands is that the weight should be resisted so that motion will be arrested in the shortest time, and the weight should be so light as to enable the bounce to be measurable. It is fortunate that this is true, for it enables the device to do the work in a manner quite up to the requirements, despite the fact that measurements for hardness were looked upon as difficult to make on a basis of reasonable accuracy.

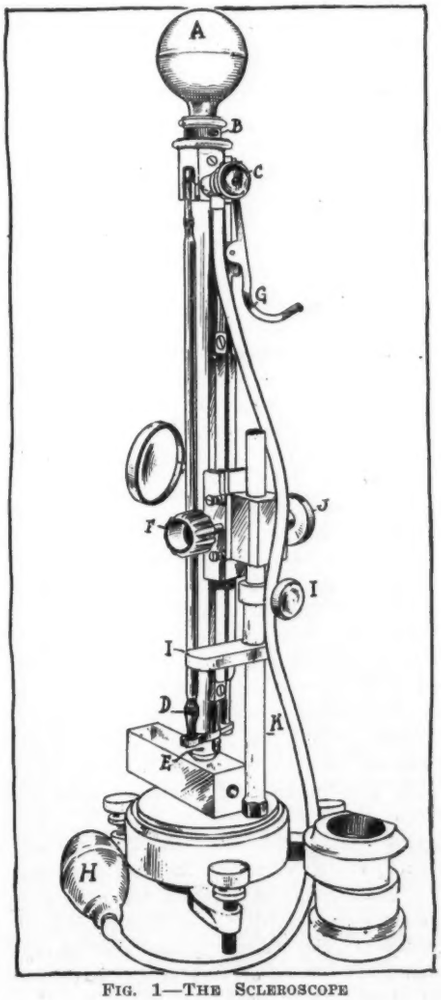


FIG. 1—THE SCLEROSCOPE

In industrial work in general, there will be many uses for an instrument of this sort, but in the motor car zone of activity it is a question if the instrument may not be used for the specific purpose of determining the state in which the finished parts may reside, with a view to passing upon them.

With a little practice it would seem possible to determine the carbon condition of the steel; if it is in the Martentistic state, for illustration, the instrument would show a hardness accordingly; in the pearlitic, the steel would show the softness to correspond. If a part is intended to be made of, say, chrome nickel steel, and if, through some inadvertence, the part comes out carbon steel, the scleroscope would quickly disclose the fact, merely because the degrees of hardness would fall far short of the harness due to chrome nickel steel in the hard state.

If a part is to be hard on one surface and soft in general, local heat treatment is necessary, and if in the press of work the hardening operations be overlooked, the inspector armed with an instrument such as this would detect the fact and the result would be for good. In the purchase of steel, the same would be true, in that the test would have to come up to a standard, and if actual tests were to show quite differently, it would be a fair inference that the purchased product would be of a different grade. In the laboratory it would be a great advantage to be able to ascertain the hardness of steel, a, in the normal state; b, annealed; c, quenched, from several temperatures; d, annealed after quenching, considering several temperatures; and in case-hardening it would be of the greatest advantage to be able to note if the core is soft, and if the shell is hard. That the core should be soft is well understood; and that it does not always come soft is assured. The shell should be hard; as hard as glass, so they say, but it would be a good idea to interpret the statement in terms a little more in keeping with what might be called defined limits.

The instrument is quite small, and it is not so delicate as to go out of calibration on small provocation. Fig. 1 shows the instrument with index letters, which will help in understanding the brief description as follows:

A—Set the instrument plumb, by means of the plumb-bob rod, on the right-hand side of the tube D.

B—Place the piece to be tested under the steel cap of the tube E, which raises up by means of the pinion-knob F.

C—Lower the instrument to the work; press it down a little, by placing the left-hand thumb on the hook G; this opens the pad valve, thus aborting the vacuum, which would otherwise follow the drop of the hammer, within the tube, and which would affect the rebound, which would in turn influence the accuracy of the instrument.

D—To release the hammer, press the red rubber bulb H with the right hand, and to know the result observe the rebound; taking the readings just as the weight is in a full state of counterpoise.

It will be understood that the weight is raised by means of the rubber bulb A, and in the operation it is necessary to press and then as suddenly release, when with the inrush of air the difference in pressure will result in the weight being sucked up to the top. A suitable catch takes into account the small piston C, with a hardened pin or rod on it, which is adapted to push against a pendulum-like hook pin, which engages with a circular dove-tailed recess in the top of the drop hammer. It is the idea to take into account the situation in general and to point out that the uses to which the instrument can be put may far exceed the original intent.

In these days, when nearly all the steel used in motor car work is heat-treated to render it strong, as well as to bring out the much desired kinetic properties, it is not enough to purchase good steel, low in metalloids, and free from such imperfections as steel naturally falls heir to. If the steel has to be heat-treated, and if the carbon content is high enough to markedly effect the qualities of the product, merely because the temperature is even slightly above or below some critical point, this instrument should serve to reduce the chances of going wrong.

It is well understood that the structure of steel will be more or less crystalline, depending upon the temperature at which the same is raised and the rate of cooling of the same. This will be true for all grades of steel, but it will be especially true in cases in which the carbon content is a little high. If the structure is noticeably crystalline, it is then that the performance of the material will be below a desired standard, while in dynamic work failure is almost assured.

Fortunately it is possible to detect a difference in hardness of a given specimen of steel for the several "fracture" conditions. In other words, if the steel is "silky," the hardness will be that for such a structure; if the structure is crystalline, the hardness will fall off, and increasing crystallinity decreases hardness, with the result that the structures which are not kinetic can be detected.

What is needed is a set of standards which are known to be in a satisfactory state, in order that the instrument can be used on a comparative basis. In cementing work the question will be a little troublesome, on the ground that the "core" of the cemented structure will not be open to test in some cases. But it will nearly always be possible to grind through the shell at some point and apply the test to the core, with a view to finding out to what extent kinetic qualities reside therein.

It is in this cementing work that there is a need for great accuracy, since the shell can be hard with no assurance that the core will be kinetic. If the shell is hard, it may be what is wanted, but it will be of no avail if the core is brittle, on the count that the part will fail in service. It would be a waste of time to perform the cementing operation at all were it not for the desire to provide against brittleness; several grades of tool-steel will become quite hard enough if the materials are heated and quenched; brittleness is one of the properties in such products.

The instrument will tell the artisan, once he becomes acquainted with the performance of the same, whether or not it will be necessary to subject cemented products to a double treatment with the idea of correcting the core without destroying the hardness of the shell. It is well understood that cemented products can be rendered the more perfect, under certain conditions, if the double quench is resorted to. On the other hand, it is also well understood that the more complex process is liable to go awry, on the ground that if there is a hazard in one operation, there is a double hazard in two.

Scrutiny of Motor Steel

The chemical laboratory in the factory at Syracuse where the Franklins are made is one of the first established by motor car makers. Many manufacturers maintain a testing department, devoted principally to the development of the engine, but give little attention to the testing of the materials used in its construction. The Franklin chemical laboratory augments the physical testing department. It is the Franklin theory that only by physical tests and chemical analysis together can the best material be obtained and there be a certainty that all stock used for a purpose is practically of the same composition. When a shipment of steel is received at the Franklin factory it is sampled and the sample sent to the chemical laboratory for analysis. If the analysis shows the steel to be within the specifications in every respect the shipment is accepted; if not, it is returned to the makers. The analysing of a single sample for a shipment is not accepted by the Franklin company as sufficient; a sample is taken from each bar and tested in the chemical laboratory. It is held that the work being done is too important to allow the possibility of its failure through the use of even one poor piece of steel. When this careful scrutiny of raw material was started, discrepancies from specifications were frequently found. However, after several tons of material had been sent back the steel makers became more careful to supply exactly the material ordered, and now such discrepancies are not frequent.

England's Motor Strength

Washington, D. C., Feb. 27—Some very interesting figures compiled by the Royal Automobile Club of England have been just received here by the government, from which it is learned that the total number of motor vehicles of all kinds registered in the United Kingdom of Great Britain and Ireland on September 30 last was 154,391. Of the total number 71,381 were cars for private use; 12,104 were motor vehicles for trade purposes; 5,880 were motor cars and motor omnibuses used as public conveyances, and the remainder, 65,026, were motor cycles. The distribution of these vehicles is as follows: England and Wales, 137,345; Scotland, 10,907; Ireland, 6,139. The use of motor vehicles has just more than doubled in the United Kingdom within the past 3 years, the growth in their use being almost uniform in the three countries. Ireland seems to lag behind a little, but this is accounted for by the fact that the returns for six of the Irish counties are for December 31, 1907, and also by the fact that a large number of the Irish cars are registered in England and Scotland. As to France's motoring strength, the official statement from Paris up to February 1, 1909, shows there are 43,550 cars in actual use in the republic. Paris claims 7,400 of these, the greatest number in any French city. Outside of Paris and in the department of the Seine there are 1,950 machines, while the Rhone district has 1,765. These French figures are secured from the annual declarations of owners made for tax purposes.

PATENT-CLAIM WAR CLOUD IN MOTORDOM

WITHIN the last week announcements have been made by two different parties of intention to bring suit against motor car manufacturers for infringement of patents, one of which dates to 1892, and one to 1903. Both parties announce their holdings of basic patents, and if either should be sustained by the court it would mean a patent war that would interest a large percentage of motor car makers.

One announcement comes from Henry Ford, who, on February 22, notified several manufacturers of his intention to bring suit unless infringements of his shaftdrive patent were stopped. This patent, No. 747,909, was filed February 24, 1903, and has serial number 144,577. It refers to a shaftdrive transmission system in which the propeller shaft is inclosed by a tube connected rigidly with the differential housing on the rear axle. This tube has a ball ending at its forward end, which is carried in a socket supported from a cross member of the frame. The driveshaft within this tubing has but one universal joint, which is within the ball and socket support of the tube. Some of the claims of the patent are as follows:

Henry Ford's Patent

Claim 1—In a motor vehicle running gear, the combination of the frame and motor thereon of a rear axle having a casing formed with a rigid reach portion—tube—extending forwardly to a point of connection with the frame and forming a universal connection therewith and the power transmitting shaft coincidently connected at a said point by a universal joint with the motor shaft and extending rearwardly therefrom to the rear axle and bearings supported by said casing.

Claim 2—In a motor vehicle running gear, the combination with a spring supported frame and motor thereon, of a rear axle having an inclosing casing formed with a rigid reach portion extending forwardly to a point of connection with the frame in the longitudinal center thereof and forming universal connection therewith, and a power-transmitting shaft coincidently connected at said point by a universal joint with the motor shaft, and extending rearwardly therefrom to the rear axle in bearings supported by the reach portion of said casing.

Claim 7—In a motor vehicle running gear, the combination of a vehicle frame, the motor thereon and an intermediate driveshaft connection between the motor and rear axle, of a rear axle casing integrally formed with a hollow reach portion—tube—extending forwardly in the center of the frame and forming a casing on which the intermediate driveshaft is journaled in suitable bearings, said reach portion having its forward end connected to the frame to form a direct and positive draft connection independently of the motor by a ball-and-socket connection, the socket member of which is rigidly connected to the frame at a point between the rear axle and the motor.

Claim 8—In a motor vehicle running gear, the combination with a vehicle frame, the motor thereon, and an intermediate driveshaft connection between the motor and rear axle of a rear axle casing integrally formed with a rigid hollow reach portion extending forwardly in the center of the frame and forming a casing in which the driveshaft is journaled in suitable bearings, said reach portion at its forward end terminating in a hollow ball member, within which the connection is made between the driveshaft and the power-transmitting shaft, and a socket member rigidly connected to the frame independently of the motor, and forming with the ball member a positive and direct draft connection with the frame.

Claim 9—In a motor vehicle running gear, the combination with the frame of a motor thereon, having a driveshaft arranged longitudinally of the frame, a driven shaft from which motion is transmitted to the rear axle, and a casing having a reach portion in line with and inclosing the driven shaft and providing with bearings therefor and with lateral extensions with the rear end of said reach portion inclosing the rear axle, and providing with bearings therefor; the reach portion provided with a ball-and-socket connection with the frame at its forward end, and a universal joint connection between the drive and driven shafts within the ball-and-socket connection and coincident therewith.

Claim 14—In a motor vehicle, the combination with the frame, the motor thereon, and axle, of a casing having a hollow reach portion, connected to the frame by a ball-and-socket joint at a point between the motor and axle, and which forms the sole strut and draft connection between the frame and axle.

Claim 16—In a motor vehicle, the combination with the frame, the motor, driveshaft, and rear axle, of a casing having a reach portion forming a housing for the driveshaft, and so arranged that it forms the sole distance bar between a motor rigidly supported by the frame and the rear axle, the connection between the frame and reach being formed by the universal joint at a point between the axle and motor.

Claim 18—A gear casing for the actuating mechanism of motor vehicles comprising a casing having a reach portion forming the direct and only positive draft connection between the rear axle and frame, and an intervening universal connection, the connection between the frame and reach being formed by a ball-and-socket joint, one member of which is rigidly secured to the frame.

Boyle Claims Shaft Drive

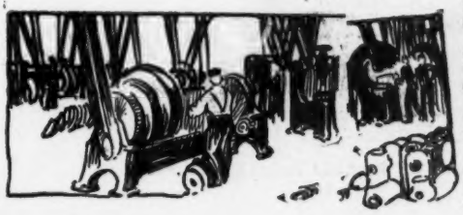
The second patent around which interest centers is No. 470,175, and was granted to Homer L. Boyle, Grand Rapids, Mich., in 1892. It was filed April 15, 1891. Injunction proceedings have already been started against one company in the United States circuit court of northern Illinois to enjoin said company from making any use of certain cars with shaftdrive. Mr. Boyle claims to have a basic patent on shaftdrive and further claims such protection as to bring suit against all makers employing this method of transmission. Some of the claims on this patent are as follows:

Claim 1—In a car or vehicle a bed plate supported on the two axles thereof, and then wheels, each axle provided with a fixed gear wheel, and means for communicating the motion of the fixed gear wheel on one axle to that on the other axle, in combination with a power-supplying shaft pivoted with a loose gear wheel, meshing with the gear wheel of the rear axle; also with a clutch adjustable longitudinally on said shaft and revolved therewith by means of a spline and groove, a lever operating said adjustable sleeve or collar so as to engage or disengage said clutch with said loose gear wheel and means for operating and revolving said shaft and the devices affixed thereto.

Claim 2—In addition to claim 1: Brackets attached to said bed plate and supporting said power-applying shaft in place and means for operating and supporting said power-applying shaft and the devices affixed thereto.

Claim 3—In a car or vehicle a bed plate supported by collars or hangers upon the rear axle and its wheels, and pivotally attached to the front axle and its wheels at and above the center of said axle, said axles each provided with a gear wheel, in combination with two compound sprocket wheels, each meshing respectively with said gear wheels of the axles, and the sprockets connected and operated uniformly by an endless chain, the compound gear and sprocket wheels supported by vertical journals and bearings, whereby the motion or revolution of the gear wheel on the rear axle is communicated to that of the front axle unaffected by any change of direction on the front axle.

Claim 4—In a car or vehicle a bed plate supported by collars or hangers upon the rear axle and its wheels, and pivotally attached to the front axle and its wheels at the center of said axle, said axle provided with a fixed gear wheel in combination with a shaft supported by brackets, said shaft provided at one end with a gear wheel meshing with said pinion and revolving with it by means of a spline groove, a rod and lever connected to said adjustable gear wheel, a double friction gearing, provided with a sleeve carried upon said shaft and adjusted longitudinally thereon but revolving with it by means of a spline groove, a power-supplying shaft provided with a friction pinion at one end, engaging with double friction bearings, and means for operating and revolving said power-supplying shaft and the several parts engaging in connection therewith.



Claim 5—In a car or vehicle, the rear axle provided with a compound gearing having more than one series of gear teeth in combination with a shaft carrying an adjustable pinion with beveled and horizontal teeth capable of engaging either series of the fixed gearing of the axle, a lever connected to said pinion whereby the adjustable pinion maiy be controlled and made to mesh with either series of teeth in said compound gearing.

Claim 11—In a car or vehicle, a power-supplying shaft connected to the engine by a pitman crank or crankpin provided with an adjustable double-friction gearing, and a friction pinion, in combination with an operating shaft having a double friction gearing and connected by gearing to the rear axle.

Claim 18—In a car or vehicle, a bed plate supported on the two axles thereof, the rear axle provided with a gear wheel in combination with a power-supplying shaft having a pinion engaging with the gear wheel, an adjustable clutch operated by a lever whereby said pinion and gear wheel may be made to operatively engage and disengage and means for operating and revolving said power-supplying shaft.

Thirty-Seven Mercedes Patents

In the February 6 issue of the Autocar of England appears a five-page review of the thirty-seven patents controlled by the Mercedes interests of Germany, some of the more important of which are as follows:

No. 10,257 of 1898, of the first honeycomb radiator patent with round tubes after the manner of a fire tube boiler.

No. 7,270 of 1899, splayed driving wheels.

No. 7,271 of 1899, a water-cooled brake in which the water tap is turned on and a brake is applied and turned off when the brake is released.

No. 9,805 of 1899, the original gate or H-quadrant for change-speed lever operating.

No. 21,652 of 1900, an interlocking mechanism for selective gearsets to prevent meshing of more than one gear at a time.

No. 3,023 of 1901, an expanding brake with a pair of shoes anchored to the frame by a link and separated by a toggle mechanism actuated by a crank.

No. 3,235 of 1901, a honeycomb radiator built up of a number of rectangular tubes separated by wires, causing sufficient space to be left between the tubes for the water circulation.

No. 6,976 of 1902, the use of fan blades in the flywheel to assist cooling.

No. 28,259 of 1903, in honeycomb radiators, the use of tubes made with enlarged ends so that the ends fit together, leaving intermediate water spaces.

No. 3,572 of 1904, a completely inclosed cooling system, the water boiling in the jackets being condensed in the radiator, a pump returning the water from the radiator to the jackets.

No. 23,990 of 1904, to facilitate starting the engine the engagement of the starting handle with a crankshaft forces along the camshaft to give half compression.

No. 6,685 of 1906, a jet carbureter, by which a cam turns about a pivot by the influence of the motor suction, thus affording a larger or smaller passage of air past the nozzle.

No. 25,081 of 1906, for starting engines compressed air is kept in a tank and passed through a carburating device in the engine.

No. 2,360 of 1907, a flexible coupling between the engine and gearbox taking the form of an intermediate shaft with specially-shaped ends, allowing of universal movement.

No. 6,346 of 1907, an expanding brake with one end pivoted to the fulcrum of the operating lever and the other end connected to the operating lever by an adjustable spindle.

No. 10,263 of 1907, to reduce the length of the crankshaft without reducing the strength; the webs are eccentric disks instead of arms.

No. 19,269 of 1907, to cool by water the crankcase and gearbox in order to keep the oil at a low temperature. These parts are water-jacketed and a water circulation is maintained.

Four Jackson Motor Car Chassis

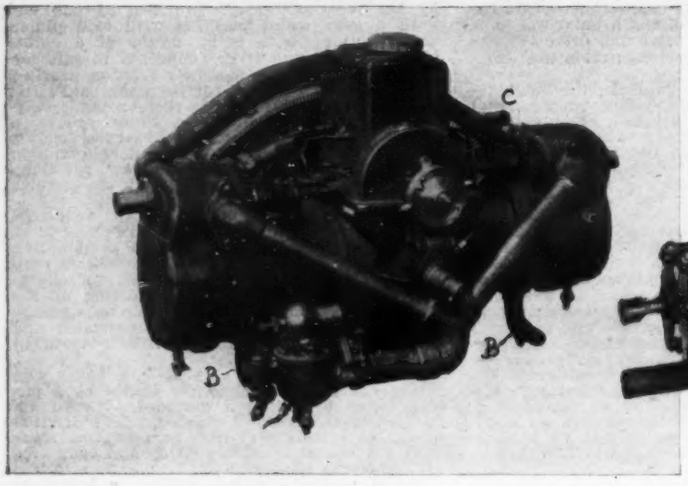


FIG. 1—MOTOR MODELS F & K JACKSON

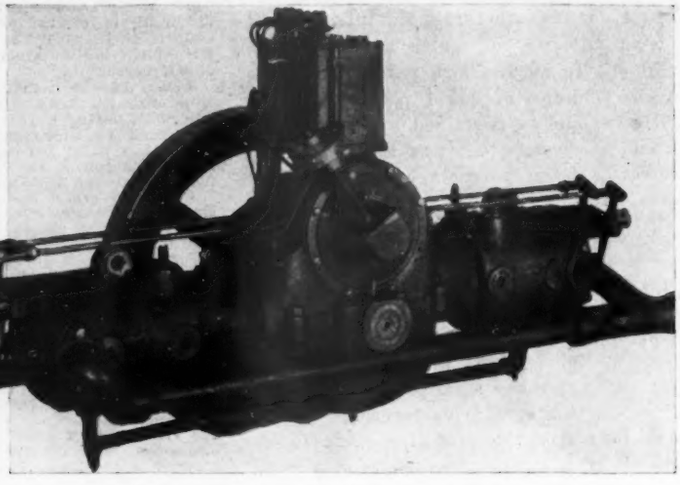


FIG. 2—JACKSON MOTOR IN MODEL C

A COMPREHENSIVE line of motor cars is offered for this year by the Jackson Automobile Co. embodying two and four-cylinder chassis in both of which many of the improvements of the year appear. The make-up of the different models is confined to two two-cylinder chassis and two four-cylinder chassis, some of the models being built with tourabout and roadster bodies in addition to the touring car style and others only with the touring car body. Although but four different chassis, there are five models, two of which are new, one being a four-passenger body on the small runabout car chassis and designated model K and the other, model H, a four-cylinder car with a new type of motor. In all four chassis not a few new features have been introduced, one of which is the employment on front and rear axles of elliptic springs. Last year ellipticts were used only on the back axles, but this season are furnished in front as well. In conjunction with their use on front axles strut or brace rods from the axle to the frame are not employed, but as illustrated in Fig. 3 the spring clips A securing the top of the spring to the frame are well separated to give a longer leverage of attachment of the frame to the spring and thereby aid in preventing tipping of the front springs when pushing the front axle, as they are called to do when the car is traveling. This shows the spring attachment on the two small cars models F and K and for model H, Fig. 4, a special one-piece bracket for anchoring the spring to the frame as well as keeping the clips well separated is used. In all models the rear springs are rigid on the axle housing, but carry the frame through trunnions. To assist in transmitting the drive from the rear axle housing to the frame, strut rods connect between the ends of the axle housing and the side member of the frame.

Other Jackson Improvements

But Jackson improvements have not all been limited to the adding of elliptic springs in front: On all models the tire sizes have been increased ½ inch over those fitted last year; thus on the two small cars, the F runabout and K four-passenger car, the sizes are 30 by 3½-inch; on C, which is the two-cylinder touring car with the motor under the body, 32 by 3½-inch sizes are used, and on the E, which is the largest touring car, the sizes used are 34 by 4. In the majority of the models the wheelbases have been lengthened, and for the first time by this concern magnetos are made regular equipment on the two large four-cylinder cars, models E and H. Storage and dry cells are regular equipment on the two-cylinder sizes.

The Jackson company has been a consistent exponent of the thermo-syphon cooling system for the last 3 years, during which time the water pump has not been used on any of the models and this year not one of the four chassis models is fitted with a pump to enforce water circulation through the jackets. In models F and K rubber hose connect direct from the radiator sides at the base to connections B at the base of the cylinder jackets, Fig. 1, and on the tops of these jackets are other connections C from which other hose lengths connect with the radiator near its top. In model H conventional large-size piping is used, the intake pipe P, Fig. 9, entering the jackets at the non-valve side and the return pipe P1 escaping from the center of the jacket heads. On model E motor which is designated by having valves in the head with an overhead camshaft, water enters by way of pipe D into the bottom of the jackets at the exhaust side, Fig. 7, and the return pipe D1 leaves the cylinder head in the proximity of the exhaust valve.

Study of the Motors

The Jackson line offers a particularly comprehensive motor study in that four styles are employed, each being characteristic. Starting with the 20-horsepower

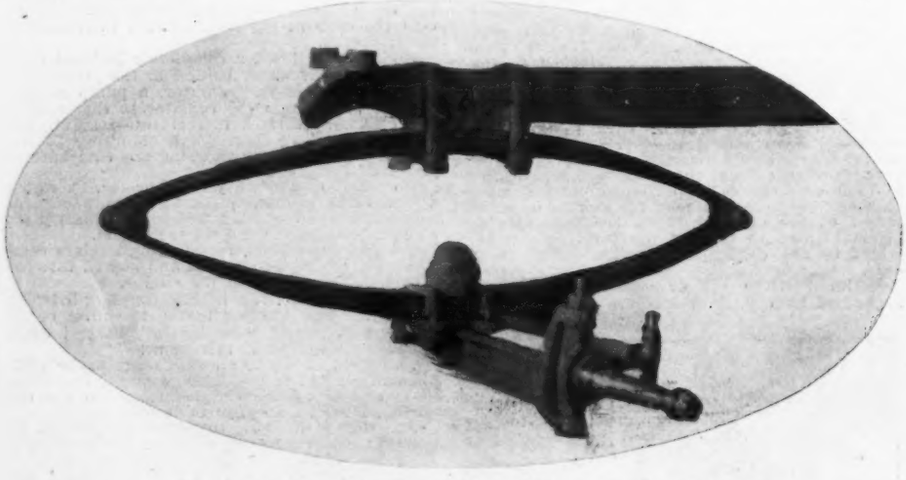


FIG. 3—FRONT ELLIPTIC SPRING ON JACKSON MODELS F AND K

two-cylinder size used in the small runabout and four-passenger car, it is of the opposed type carried transversely in front under the hood; the model C motor is mounted longitudinally under the body and the two four-cylinder types are carried in front. All of these, with the exception of model H, a new one this year, are manufactured in the Jackson plant. The model H is a Northway design. Both of the two-cylinder sizes have longer cylinder diameters than strokes, the F and K having 5 and 4-inch bore and stroke respectively and the C having 5¼ and 5-inch sizes. In the four-cylinder types the sizes are: Model H, 4½ by 4½ inches, and model E, 4¾ by 4¾ inches, showing how the company prefers the square cylinder in vertical type motors and in the horizontal type uses a slightly larger diameter than stroke.

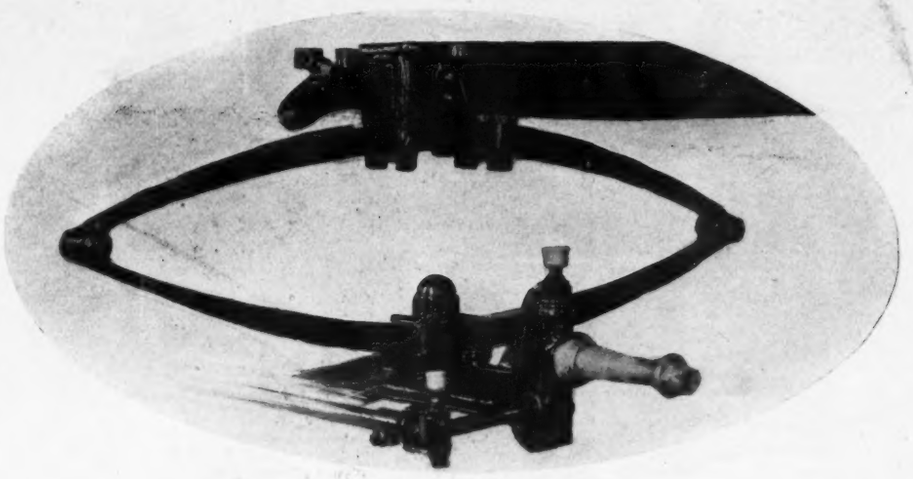


FIG. 4—FRONT ELLIPTIC SPRING ON JACKSON MODEL H

Granted that after a motor is built, efficient lubrication is the one great aim to be accomplished in order to preserve the life of the motor, it is interesting to note the variety of means used by the company to secure commensurate oiling in all of the parts. In the two-cylinder types the conventional mechanical oiler carried above the crankcase is used, the oiler reservoir in one being integral with the crankcase and in the other a separate one is mounted on the crankcase cover. In both the oil leads pass to the crankshaft bearings and to the cylinder walls. In model H a circulating system is furnished in which, as illustrated in Fig. 6, a pump K is carried on the rear end of the crankcase and draws oil from a reservoir R formed in the lower part of the crankcase. The oil is taken to the pump through a lead S and delivered to the motor parts through another lead S1, whence it is divided into branches leading to the front and rear crankcase compartments.

In this way a constant level is maintained under all of the crankshaft throws into which the lower ends of the connecting rods dip once in each revolution.

It remains for model E to have the most unique scheme of all, there not being an oil pump of any nature in connection with it. The flywheel on this motor is enclosed and the compartment is partly filled with oil. The rotation of the flywheel picks the oil up and when it is being carried around on the rim it is, by means of a plate located close to the flywheel rim on top, thrown off into a slanting duct which leads the oil forward into the rear compartment 4 beneath the back connecting rod. Each connecting rod dips into a restricted part of the crankcase and the splash herein created fills a slanting groove on the wall of this compartment within the crankcase and drains the oil forward into the next one ahead, namely, compartment 3. From compartment 3 the oil is similarly led to compartment 2 and thence to compartment 1. Arrangements are made that when the oil level in each of the compartments 1, 2, 3 and 4 reaches a certain level it overflows into the reservoir R, whence it goes to refurnishing the oil in compartment 5, in which the flywheel revolves. In this oiling system there is a constant forcing of the oil forward from the rear cylinder to the front.

In the four Jackson motors two stylesings less than 3 inches apart. Means for of cylinders are used, one type with valves in the head, the other with the L cylinder having the intake and exhaust valve side by side in the compartment; and it is noted that of the two horizontal types one uses the L cylinder and in the other, with the valves in the head, and in the four-cylinder styles, a similar division appears.

Model H Motor of L Style

The model H four-cylinder motor is a conventional L style calling for one camshaft within the crankcase. In model E but one camshaft is needed and it is carried over the cylinder heads and driven by a vertical shaft at the front of the motor. In this motor the valves are mounted at an angle to the cylinder bore and the camshaft is not only enclosed but the rocker arms for opening the valves have their inner halves and bearings enclosed and operate in oil. These rocker arms employ the usual rollers on their inner ends for bearing upon the cams, all of which are rendered dust and oilproof by the housings. The camshaft is supported on eight bearings, two over each cylinder, and the strain on this shaft due to opening of the valves is taken between two bear-

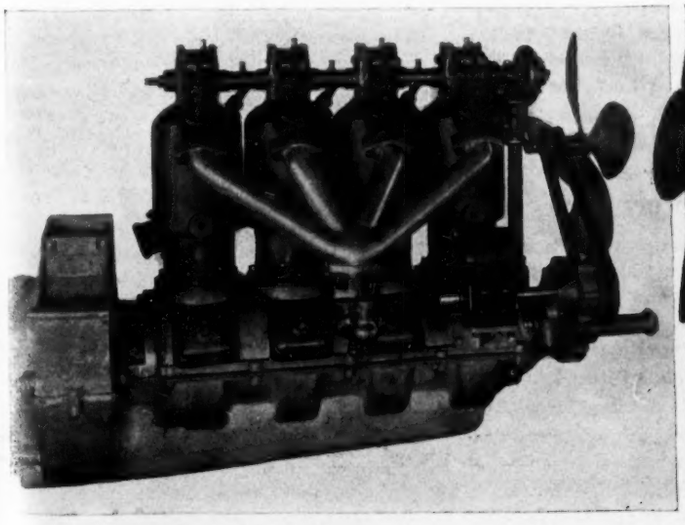


FIG. 5—JACKSON MOTOR MODEL E

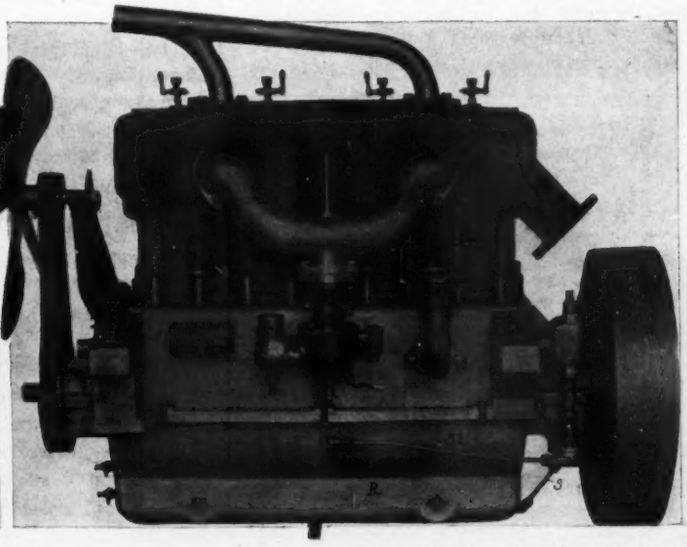


FIG. 6—JACKSON MODEL H MOTOR

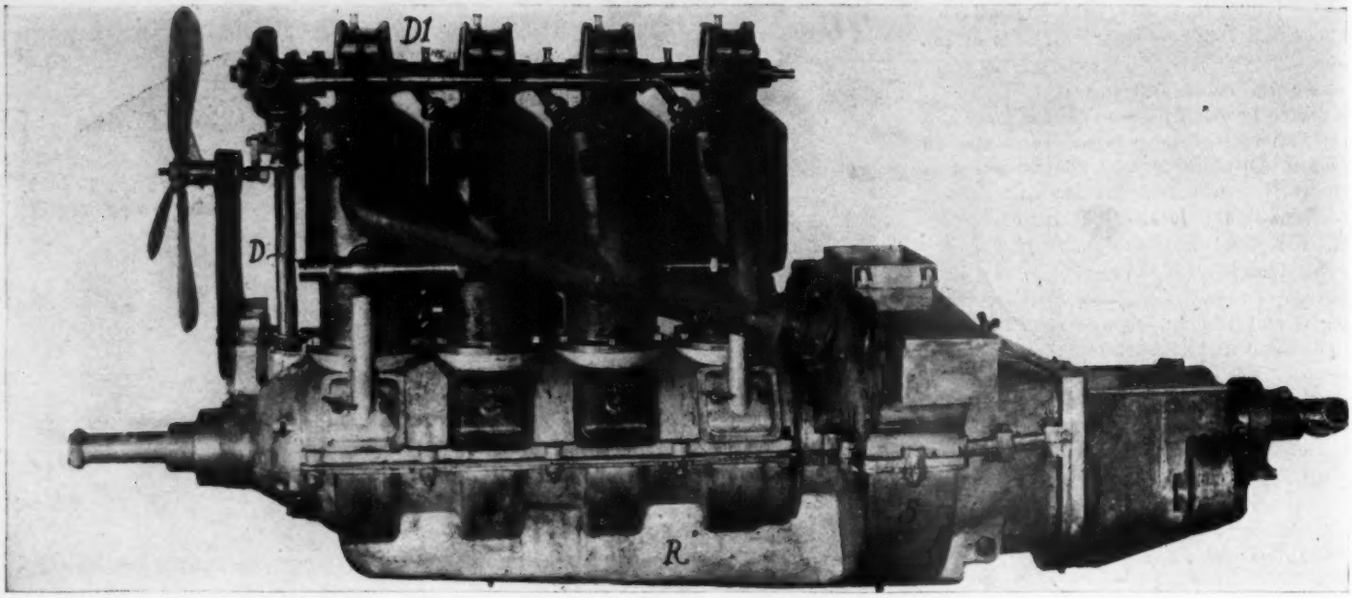


FIG. 7—EXHAUST SIDE OF UNIT POWER PLANT IN MODEL E JACKSON

varying the timing are provided on the outer ends of the rocker arms and to make the best possible provision against wear the rocker arms are made with double bronze to steel bearings, each having 4½ square inches of bearing surface.

Unit Power Plant in E

The model E is the only one to employ the unit power plant consisting of three main castings, the lower and upper parts of the crankcase which extended rearward forming a housing for the flywheel and the disk clutch and the one-piece housing for the gearset. This unit case is carried on three points of support, two in the flywheel plane and one at the forward end. The other four-cylinder motor has four points of support. But five disks are used in the clutches of these two cars, these disks being 12 inches in diameter and with both surfaces ground. One spring acting through a leverage system of toggles holds the disks in engagement. The transmissions employed in the four-cylinder cars are selective sets differing only in minor details, one set having the mainshaft above the countershaft and the other set with this arrangement reversed.

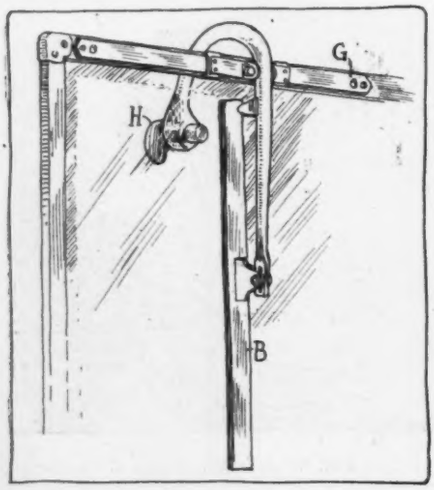


FIG. 8—ROCKFORD GLASS CLEANER

Shaft-drive is used on all but one of the Jackson models, the exception being model C, with the motor mounted amidships. In the shaft system but one universal is used, it being at the rear of the gearset. The driveshaft housed in a tube formed rigidly with the differential housing and having its forward end terminate in rear of the universal joint. On shaft-driven models the rear axle driveshafts are carried on Hyatt roller bearings and in all models ball bearings are used for the front road wheels. In the selective gearset ball bearings are used.

On the two four-cylinder models fabric brakes are employed, there being two sets mounted on concentric drums on the rear wheels, one set expanding within the smaller drum and the other set contracting on the larger drum. The I-beam front axle is used on all but model C, the chain-driven car. The model F and K chassis has had the wheelbase raised from 90 to 96 inches, the body is larger, mudguards are heavier and a tool box is furnished on the running board. The model C wheelbase has been lengthened from 96 to 104 inches, the body is slightly increased and other changes made. All of the I-beam axles used are made by the Jackson company in its new drop forge plant specially equipped for such work.

ROCKFORD SHIELD CLEANER

The Rochford cleaner, manufactured by the Rochford Mfg. Co., Chicago, has been placed on the market, and promises to fill a long felt want. As shown in the illustration, it is a small device which can be attached to the outside of the frame of any glass front, and operated from the inside. The device is made of brass and consists of a common rubber-edged window cleaner B, operated by the lever which curves over the top and is supported by a sliding rack on the guide rail G. H is a thumb screw with a rubber tip, which holds the device securely at either side of the glass front or in any intermediate position when not in use. One turn of the thumb screw H loosens the contrivance, and by merely drawing it across the glass any water, snow or dust is readily removed.

KOKOMO MAGAZINE GUN

In the accompanying illustration is shown the construction of the Kokomo automatic pneumatic magazine gun, manufactured by the Kokomo Grease Gun Co., Kokomo, Ind. In this grease gun the piston which forces the grease out is worked by air pressure and not by hand. The gun is composed of a cylinder made of nickeled steel tubing, which is permanently closed at the handle end except for a small air valve P; has a removable fixture with an oil valve at the other end and contains a piston S with a guide. To load the gun, it is only necessary to release the pin valve P, push back the piston S, fill the chamber with grease or oil,

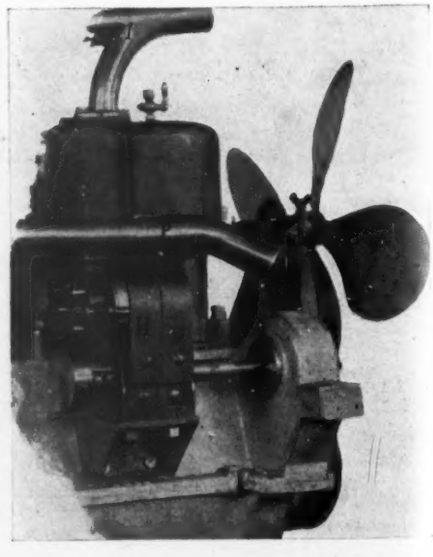


FIG. 9—MAGNETO ON JACKSON MODEL H

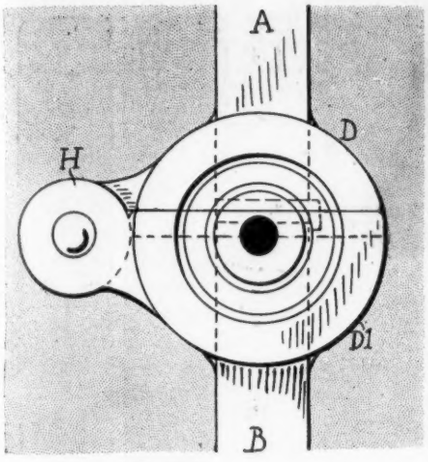


FIG. 10—UNIVERSAL WIND SHIELD

screw on the cap B, then with any tire pump fill the chamber behind the piston with air to a pressure of about 100 pounds. When needed, take nozzle D and screw it on to oil valve V, then unscrew the valve regulator C a few turns according to the quantity of oil desired to flow, press on the nozzle, and grease will be forced into any bearing into which the nozzle may be directed. Immediately pressure on the nozzle is removed the valve closes and no grease can flow. When not in use the nozzle is replaced by the cap E to guard against any leakage. F is a brass cone which is slipped on to the end of the nozzle so that it can be applied to different sized small openings. The valve V operates as follows: Pressure on the nozzle D forces valve V in the direction of the piston S so that the slot T is uncovered, offering an escape for the grease through this slot and the hollow valve stem to the nozzle D. The setscrew M prevents rotation of the valve V when screwing on the nozzle D.

UNIVERSAL WIND SHIELD

The Universal Wind Shield Co. of Chicago has recently placed on the market the Universal shield, which is of the folding type and has the additional arrangement whereby the lower half of the shield can be placed at any desired angle. As illustrated in Fig. 11, the telescoping tube T, for supporting the lower half, receives at its upper end the split tube TS, which attaches to the wind shield frame. Within this is a tapered nut N controlled from a thumb screw N1, so that by pulling the nut N upwards, accomplished by turning the thumb screw, the tube TS is expended

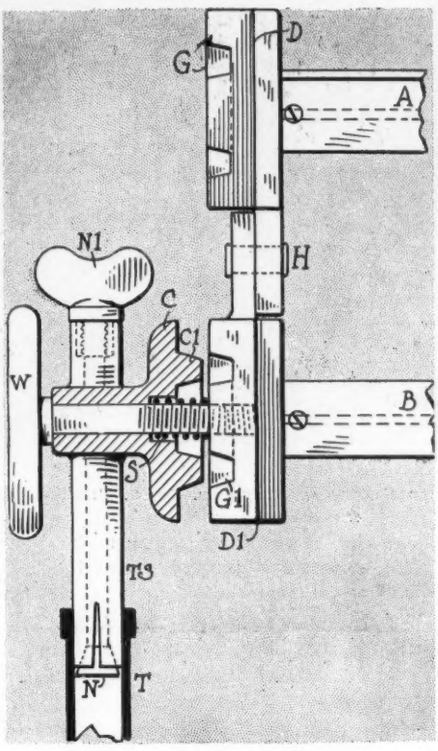


FIG. 11—UNIVERSAL WIND SHIELD

within the tube T, locking it at whatever point desired. The method of fastening the upper half of the wind shield in a vertical position is also illustrated, A representing the upper half, and B the lower half, and their position in the illustration being as seen directly from above, with the upper half A folded beside the lower half B, H representing the hinge. On the upper half is a semi-circular drum D containing a semi-circular groove G, and on the lower half is a similar drum D1 with groove G1. These are complementary halves so that when the upper half A is swung up into the vertical position the semi-circular drum D, in conjunction with the semi-circular drum D1, forms a circular drum with a circular groove made up of the halves G and G1. When in the up position a cone C with the corrugation C1 is by the finger wheel W forced against the drum made of the halves D and D1, so that the corrugation C1 enters the circular groove made up of the halves G and G1. This locks the upper half A in position. To lower the upper half it is but necessary to loosen the finger wheel W when a coil spring S releases the corrugation C1 from the groove and the top half is free to fold if desired. In Fig. 10

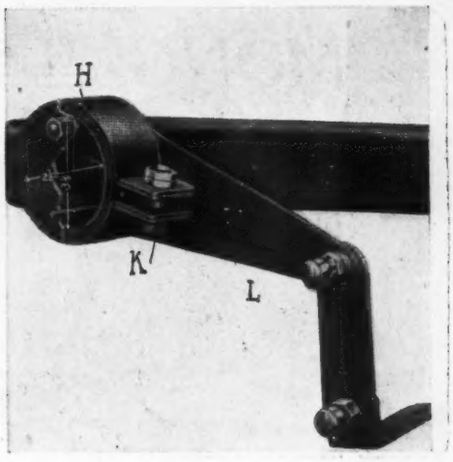


FIG. 12—FOSTER SHOCK ABSORBER

appears the shield with the upper half A in the up position ready for use.

FOSTER SHOCK ABSORBER

An entirely new shock absorber has been brought out by the Gabriel Horn Mfg. Co., Cleveland, O., and designated the Foster after the inventor, Claude H. Foster, whose name has been inseparably linked with Gabriel horns and Gabriel shock absorbers. This new device, as illustrated in Fig. 12, acts on the principle of a band brake. Attached to the side of the car frame is an oval-shaped steel cup, the vertical length of which is ¼-inch greater than the width, the cup measuring 3⅛-inches in the vertical direction, and 2⅞ in the horizontal direction. Encircling the cup is a one-piece band H made from flexible spring steel lined with thermoid, between which thermoid and the cup the required friction is generated. Formed integral with the band H is the arm L for attachment to the axle of the car. The *modus operandi* of this shock-absorber is briefly as follows: Because of the oval nature of the cup, the central movement of the arm L is comparatively free, which movement is 1 to 3 inches at the end of the arm, and in which radius practically free spring action is permitted. Beyond this radius, however, the upward or downward action of the spring is impeded by the band H having to adapt itself to the oval shape of the cup. This creates friction in proportion to the upward or downward movement of the arm L. A covering is provided for the absorber so that the friction surfaces are entirely protected from dust or mud. Splitting the band H at K permits of varying the adjustment.

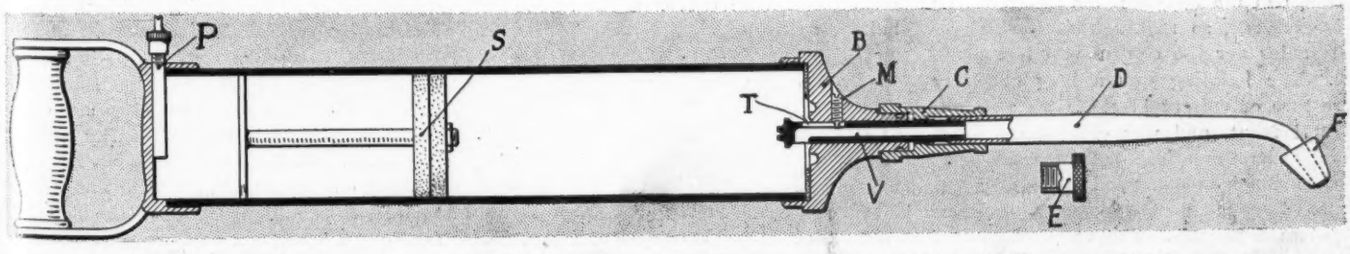


FIG. 13—SECTION OF KOKOMO PNEUMATIC GREASE GUN SHOWING PISTON AND VALVE

AMONG THE MAKERS AND DEALERS

BUILDING OF MINER GARAGE AT HARTFORD, CONN., PIERCE- ARROW AGENT

Removal Notice—The Bonney Vise and Tool Works has removed its factory and general offices to Allentown, Pa.

Branching Out in Omaha—Freeland Brothers & Ashley, agents for the Mason car at Omaha, Neb., have taken the agency for the Midland and Randolph, the latter a commercial vehicle.

Big Car Shipment—During the recent Omaha show there arrived in Omaha one of the biggest shipments that ever went out of Detroit, the H. E. Frederickson Co. receiving forty-two Chalmers-Detroits by freight.

New Garage for Baltimore—George W. Eisenhauer, president of the Eisenhauer-McLea Co., of Baltimore, will build a garage at the southwest corner of North avenue and Lovegrove alley. This garage will be the home of the Palmer & Singer, Simplex and Buick cars, which agencies have just recently been taken on by the company, which is known as the Auto Outing Co. The site for the proposed new building fronts on North avenue 39 feet and has a depth of 175 feet. The building will be two stories high and will be unique in appearance, the design being taken from an old English inn. The construction will be reinforced concrete, and the facade will be of half timber framing, with lattice dormer windows.

Milwaukee Fire—The Sanger garage, at 572-574 Farwell avenue, Milwaukee, home of the Edgar F. Sanger Co., handling the Maxwell line, and of the Sanger Automobile Co., agent for the Franklin, was totally destroyed by fire on February 25. Twenty-seven cars belonging to private owners were badly damaged or ruined entirely, and the building was wrecked. All were insured, so that neither the Sanger companies nor the owners will lose heavily. The building was a long one-story structure of cement blocks, with an ornamental front, and was erected only last year. The fire originated from an overheated stove and was not discovered until too late to save the building. The entire loss is $75,000. The value of cement floors was proven by the fire, for a number of large gasoline storage tanks installed under the floor and buried in the ground escaped.

Would Enlarge Plant—The American Motor Car Co., of Indianapolis, is trying to enlarge its factory and is negotiating for a lease on the first floor of the building it now occupies at Illinois and Henry street. This would give the company the entire building.

Remodeling Old Building—The building at 901 Boylston street, Boston, where the Panhard and Shawmut cars had salesrooms, is being remodeled and when the work is finished it will be occupied by the Boston branch of the Michelin Tire Co. I. H. Fiske is manager of the branch, and under his guidance the business has grown to such an extent that the old quarters were too small to take care of things properly.

Again an Injunction—Although the Milwaukee board of public works thought itself free from injunctions when it hurriedly purchased a Peerless seven-passenger touring car for its own use, the Johnson Service Co., manufacturer of the Johnson, Milwaukee, has again held up the purchase. Three cars, authorized by the common council, are now held up by injunction because the board did not buy Milwaukee-made cars. It is believed that the difficulty will be adjusted soon.

Chicago Trade Changes—The Chicago Motor Car Co., agent for the Packard and now at 1617 Michigan avenue, has purchased property at Michigan avenue and Twenty-fourth street, where it will erect a three-story brick and concrete structure which will be ready for occupancy about the middle of August. The building will be at the northeast corner and will front 60 by 133 on Michigan and 60 by 127 feet on Twenty-fourth street. The Fiat company has opened a branch at 1424 Michigan avenue, which is in charge of Harry T. Clinton. Occupying the same store will be the new Hearne-Marden company, which has taken on the Herreshoff. The Monson-Gunning Automobile Co., 541 Wabash avenue, has secured the agency for the Marion Flyer. The Renault branch has moved to larger quarters at 1606 Michigan avenue.

Howlett Changes—Harry Starr Howlett, who has been with the Boston branch of the Fisk company for several years, has been appointed manager of the Boston branch of the Jones speedometer to fill the vacancy caused by the death of Rossell Drisco.

O-T May Build—The Owen-Thomas Motor Car Co., of Janesville, Wis., maker of the O-T Six, will decide this week on the matter of building the contemplated factory at Janesville. The company now occupies the former Northwestern railway roundhouses, but must vacate, as the building will be razed to make yard room.

Novel Commercial Idea—The Indianapolis Motor Car Co., Indianapolis, has sold three trucks to J. O. Addison, Knightstown, who will put them to a use said to be original. Addison expects to engage in the vacuum cleaning business and will mount three of the cleaning machines on the trucks. The cleaners are usually operated by a gas engine, but Addison expects to disconnect the motors on his trucks, connect them with the cleaning machines and thus operate them. He expects to do a large business in cleaning houses through the rural districts, as Knightstown is not a large enough city to keep the three machines busy.

Moves in Minneapolis—Several changes in locations are noted among the Minneapolis dealers, largely because of the finishing of the motor mart, a new building at the corner of First avenue south and Tenth street. The Pierce-Arrow now has a fine new home there with spacious showrooms and ample accommodations, and together with this line are the Franklin and Countrymen agencies and the Diamond Rubber Co. The one remaining store in the motor mart will be occupied by a supply house. While there was a motor row started on Hennepin avenue, the additional settlement of many of the dealers on First avenue, across town two blocks, carried considerable weight, and the re-

sult is that there are two centers of trade fairly close together. These centers will eventually be united.

Kirk a Herreshoff Man—Ezra Kirk's new title will be western manager for the sale and distribution of Herreshoff cars, which will be handled by Harry S. Houpt. An office has been opened in Detroit, which is in charge of Mr. Kirk.

Friend Sells Out—The Browne-Friend Motor Car Co., Milwaukee, Wis., agents for the Mitchell, Marmon and Holsman, has changed its name to the G. W. Browne Motor Car Co. Otis Friend has disposed of his interest to Mr. Browne, who will be practically sole owner.

Enterprising Undertakers—Flanner & Buchanan, Indianapolis undertakers, have just received a gasoline ambulance, the first vehicle of its kind in use in Indiana. In 1883 the company was the first of its kind to make use of a private ambulance. Later on the company introduced another innovation in undertaking circles by purchasing an electric runabout in which all professional calls were made. The Indianapolis City Dispensary has ordered an electric ambulance, but it has not yet been placed in service.

Cleveland Events—A handsome $60,000 building is to be erected for the Babcock electric in upper Euclid avenue, Cleveland, the heart of the residence district, and the entire state will be handled from Cleveland. The Babcock Electric Garage and Sales Co. is the full name of the new concern. Lately the Broc Carriage and Wagon Co. took over the effects of the Byrider Electric Co. and is now turning out the Broc electric. The Western Reserve Motor Car Co. has been organized to handle the Pierce-Arrow, Knox and Woods electric, while the Elmore Motor Car Co., of Cleveland, has taken the agency for the Waverley electric. The Commercial Car Co. has taken on the Pope-Toledo, while Stahl, Hoffman & Co. are selling the Locomobile. The Firestone Tire and Rubber Co. has opened a branch on motor row, while several smaller concerns have entered the accessory field. The Wingle Motor Car Co. has taken the agency for the American Simplex and Midland.

Motor Cycle Branches Opened—The American Motor Co., of Boston, builder of the M-M motor cycles, has opened branches in Chicago and Omaha since the Chicago show. G. M. Greene, formerly manager of the Boston branch, is in charge of the Chicago office. The company also opened a branch in Los Angeles some time ago.

Hoblitt Does Well—F. M. Hoblitt, general sales manager of the American Locomotive Co., stopped in Minneapolis for a day on his return from an extended trip on the coast. While in San Francisco he closed a deal with three of the largest hotels for twenty-five American Locomotive taxicabs for spring delivery. He also opened an exclusive American Locomotive agency in Los Angeles and while there personally sold three cars.

Plants for Minneapolis—There is talk of two new motor car factories being located in Minneapolis, possibly in the spring. A. F. Chase, the local Mitchell agent, has a high-wheeled proposition and plans are under way to establish a factory where the car will at first be assembled and later where it will be manufactured. W. M Pease, of Aberdeen, S. D., has been in Minneapolis in the interests of the Garicar, a new gasoline proposition, and it is understood that a plant will soon be started for the manufacture of it.

Baltimore Happenings—The Rauch & Lang electrics are among the latest makes to establish an agency in Baltimore, Md., being handled by the Rice garage at the corner of Madison and North avenues. The salesrooms for the Pierce-Arrow car in Baltimore, Md., will be located on North Howard street, near Franklin, the Foss-Hughes Co., which represents the car in that city, having purchased a suitable store at 533 North Howard street for the purpose. An agency for the Renault car has been established in Baltimore, a deal having been closed whereby the Stoddard-Dayton Baltimore Auto Co. will handle the car there. This is the first agency of a foreign car to be located in the Maryland metropolis.

Mora in Boston—The Mora car is the latest to come to Boston. The G. H. Proctor Supply Co., which has its headquarters on Irvington street, has taken the Boston agency. The Mora was represented in Boston once before, but for more than a year the first agency has been closed.

Dowse Succeeds Monson—Ralph P. Dowse, of Chicago, succeeds Charles A. Monson as manager of the G & J Tire Co.'s Detroit branch, taking effect March 1. Mr. Monson has accepted a position with Gray & Davis. Mr. Dowse has been a traveling salesman for the G & J Tire Co. for some time.

Remy in Chicago—The Remy Electric Co., Anderson, Ind., has opened a branch distributing office at 1400-1402 Michigan avenue, Chicago, which will be in charge of Major B. Hawkhorst, formerly salesman for the Western Electric Co. One of the features of his office will be the cross-sectional view of the Remy high-tension magneto exhibited at the recent New York and Chicago shows. A factory mechanic will be at the branch to assist in installing magnetos on old cars. A New York branch was opened some time ago. The demand for Remy magnetos is such that the factory and office forces have been nearly doubled, and new agencies established.

New Moon Agencies—As a direct result of the exhibition of Moon cars at the Chicago and St. Louis shows, three new agencies have been established for this car. In Chicago the Centaur Motor Car Co., 1725 Michigan avenue, will handle the car. The Riverview Automobile Co., at 325 East North avenue, Milwaukee, has just secured the Moon agency, which was previously handled by another concern in that city. The Riverview company has recently constructed a modern concrete garage two stories high, where it will handle the Moon car exclusively. A new agency has also been established at Little Rock, Ark., where C. R. Ledbetter will sell the Moon.

FORTY-TWO CHALMERS-DETROITS RECEIVED IN ONE SHIPMENT BY H. E. FREDERICKSON CO. OF OMAHA, NEB.

Brief Business Announcements

Hartford, Conn.—John A. Wood, 19 Mather street, has taken on the agency for the Jewel.

Chicago—George F. Adams, 1420 Michigan avenue, has taken the Marmon agency for the state of Illinois.

Pittsburg, Pa.—Frank C. Kunkel, of the Kunkel-Kelley Co., which handles the Overland in Pittsburg, is manager of the concern.

Chicago—The Dooley-Meyer Automobile Co. is now located at 550 Wabash avenue, where it will continue its regular business of buying, selling and rebuilding cars.

Boston, Mass.—F. W. Paine, formerly manager of the Massachusetts Auto Co. in Boston, has joined the G. H. Proctor Co. in this city to handle the Mora cars.

Milwaukee, Wis.—The Curtis Automobile Co., Wisconsin agent for the Reo, has appointed the Cumberland Auto Co., of Cumberland, district agent in a few northwestern counties.

Pittsburg, Pa.—F. W. Fischer has secured the selling agency for the Mora and Jewel. He will be assisted by C. G. McCormick in the Jewel agency and O. G. Lang with the Mora cars.

Wichita, Kan.—In order to provide for its increase of business the Franklin Motor Car Co., dealer in Franklin cars, has enlarged its quarters on North Emporia street by the lease of an adjoining building.

Fond du Lac, Wis.—The Worthing-Clark Automobile Co. has finally started construction work on its new $10,000 garage, all difficulties having been overthrown. The garage will be ready for occupancy about May 1.

Pittsburg, Pa.—The Overland Taxicab Co. has applied for a Pennsylvania charter, and if this is secured expects to get down to business about April 1. It will operate twenty-five Overland cars and run all over Greater Pittsburg.

Greenwich, Conn.—C. H. Minchin, who has opened a garage here, intends starting a similar establishment in Port Chester, N. Y., having secured a location there at 139 South Main street. He handles the Maxwell cars and the M-M motor cycles.

Columbus, Ind.—A movement is on foot here for the organization of a company to manufacture motor delivery wagons. It is said that the greater part of the capital has been subscribed, but the names of those interested have not yet been made public.

New York—The Welch Motor Car Co., of Pontiac, Mich., has announced that it will open an agency here on Broadway, to be conducted by Welch & Forrester, who will take possession of the old Welch salesrooms near Sixty-third street. A. R. Welch, who is at present the manager of the Welch Motor Car Co., is to be a member of the firm.

Dows, Ia.—C. W. Broeffle, formerly of Eagle Grove, Ia., has fitted up a garage and machine shop here.

Wausau, Wis.—C. Junkerman will erect a garage to cost $5,000. It will be reinforced concrete construction.

Pittsburg, Pa.—The Speedwell Automobile Co. has secured the agency for the Schacht for the Pittsburg district.

Chicago—Frank Wing, for 3 years representing the Buick on the road, has severed his connection with the Flint concern.

Hartford, Conn.—The Evarts Machine Co. has just completed a three-story shop on Hicks street. An enlargement of the old quarters was necessary as a result of motor car repair work.

Springfield, Mass.—H. C. Spear is about to install a taxicab service in this city. He is already in the business of renting cars, and will operate the taxicab business in connection with his other work.

Milwaukee, Wis.—D. J. Hummell will open a garage and salesroom at Oshkosh, Wis. He will handle the Reo line in northeastern Wisconsin. The Curtis Automobile Co., of Milwaukee, is state agent.

New York—H. N. Allen, who succeeded W. W. Tracy as president of the York Taxicab Co., has severed his connection with the company. The company has just moved into its new quarters at Eleventh avenue and Fifty-seventh street. Pending the election of a new president, H. C. Hoskier will be in charge.

Pittsburg, Pa.—The Boulevard Auto Supply Co. will inaugurate a new idea by keeping its place open all night. It is located at Grant boulevard and Thirty-third street, on the main line of late motor traffic, and its manager is George Albitz.

Milwaukee, Wis.—Formal changes have been made in the Solliday Motor Car Co., of Milwaukee, Wis., transferring the business to the Stephenson Motor Car Co., successor. Amendments have been filed to the articles of incorporation of the Solliday company to this effect.

Denver, Colo.—The G. and H. Taxicab Co., which was recently organized by R. H. Glover and H. A. Hurlbut, is about to erect a garage at Seventeenth and Logan streets. The company has already purchased a number of Chalmers-Detroit taxicabs.

Milwaukee, Wis.—Charles M. Thorning will erect a $5,000 public garage building on Twenty-sixth street, near Grand avenue. It will be of brick and stone, one story, 45 by 125 feet in dimensions, and will be used principally for the keeping of cars owned by residents in that district.

Newark, N. J.—The Martin Auto Co. has taken over the De Camp garage at 284 Halsey street, and is now open for business. The Martin company has the state agency for the Mitchell. A. A. Russell, who is the secretary and treasurer of the company, is to act as manager of the garage.

Pittsburg, Pa.—The Pittsburg Taxicab Co. has secured an east end site and intends to build a garage large enough to hold fifty machines in order to start its service right April 1. Its downtown office will be at the Fort Pitt hotel. Its president is J. W. Weibley and Grant McCargo is treasurer.

Beloit, Wis.—Percy Holloway and Edgar Patterson have formed a partnership under the name of Holloway & Patterson and will open a garage here. T. B. Wells will erect a large building in the spring for the company. It will be 40 by 100 feet in dimensions, two stories high and of fireproof construction.

Raleigh, N. C.—V. H. Brewer has formed the Carolina Garage and Machine Co., which is erecting a two-story building 75 by 105 feet in floor dimensions. It is intended to make the structure one of the best equipped garage buildings in or about Raleigh. The entire lower floor will be used as a showroom for Franklins.

RECENT INCORPORATIONS

Jersey City, N. J.—National Motor Car Co., capital stock $2,000, to manufacture cabs, vehicles and wagons.

Jersey City, N. J.—Bruns, Kimball & Co., capital stock $35,000, to deal in and repair motors, engines, etc.; incorporators, W. Bruns, C. C. and M. C. Kimball.

Chicago—Reo Automobile Co., capital stock $2,500, to manufacture and deal in motor cars and motor vehicles; incorporators, O. C. Owen, B. C. Buxton.

Portland, Me.—Taxicab Co. of Maine, capital stock $25,000, to deal in vehicles of all kinds; incorporators, R. C. Foster, C. Brown.

Chicago—Emer Motor Livery Co., capital stock $50,000, to manufacture cars and operate a garage; incorporators, W. W. Dixon, W. S. Jameson.

Chicago—Overland Motor Co., capital stock $1,000, to manufacture motor cars; incorporators, W. J. Bowman, C. W. Price and N. S. Smyser.

Detroit, Mich.—United States Spare Wheel Co., capital stock $10,000; incorporators not named.

New York—Emil Grossman Co., capital stock $100,000, to manufacture motor cars; incorporators, Emil Grossman, J. A. Vesey and J. Silverman.

New York—McLaughlin & Ashley Motor Cycle Co., capital stock $10,000, to manufacture motor cars, motor cycles and motor boats; incorporators, J. F. McLaughlin, G. A. Ashley and Dwight Patterson.